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ABSTRACT

This instructor's manual contains 18 units of instruction for a course on surgical technology designed to include the entry-level competencies students need as a surgical technologist. Each unit includes some or all of the following basic components of a unit of instruction: objective sheet, suggested activities for the teacher, assignment sheets and answers to assignment sheets, written test and answers to written test, unit evaluation form, teacher supplements, transparency masters, information sheet, student supplements, and job sheets. In addition, the teacher's edition contains the following: supplementary materials on use of the publication; a competency profile; an instructional and task analysis; a list of related academic and workplace skills; and a tools, equipment, and materials list. All the unit components focus on measurable and observable learning outcomes; units of instruction are designed for use in more than one lesson or class period of instruction. The 18 instructional units in this course are grouped into 3 sections that cover the following topics: aseptic technique, patient care, and supplies and equipment. Contains 40 references.
(KC)

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Surgical Techniques

Second Edition

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Surgical Techniques

Teacher Edition

Table of Contents

Foreword	v
Acknowledgements	vii
Use of introductory materials	ix
Use of this publication	xi
Academic and workplace skills classification and definitions	xv
Competency profile	xvii
Instructional/task analysis	xxiii
Related academic and workplace skills list	xxxvii
Tools, equipment, and materials list	lvii
References	lxi

SECTION A: ASEPTIC TECHNIQUE

Unit 1-A: Principles of Aseptic Technique	ST2-A-1
Unit 2-A: Scrubbing, Gowning, and Gloving	ST2-A-51
Unit 3-A: Sterilization and Disinfection	ST2-A-105
Unit 4-A: Operating Room Sanitation	ST2-A-141

SECTION B: PATIENT CARE

Unit 1-B: Preoperative Routine	ST2-B-1
Unit 2-B: Positioning, Prepping, and Draping	ST2-B-31
Unit 3-B: Related Nursing Procedures	ST2-B-113
Unit 4-B: Care of Pediatric Patients	ST2-B-149
Unit 5-B: Care of Patients with Special Needs	ST2-B-167
Unit 6-B: Care of Chronic and Terminal Patients	ST2-B-183

SECTION C: SUPPLIES AND EQUIPMENT

Unit 1-C: Operating Room Furniture and Equipment	ST2-C-1
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Unit 2-C:	Instrumentation	ST2-C-33
Unit 3-C:	Sutures and Needles	ST2-C-115
Unit 4-C:	Sponges, Dressings, and Packings	ST2-C-169
Unit 5-C:	Drainage Systems and Tubes	ST2-C-191
Unit 6-C:	Syringes and Hypodermic Needles	ST2-C-215
Unit 7-C:	Sponge, Sharp, and Instrument Counts	ST2-C-239
Unit 8-C:	Division of Duties When Establishing a Sterile Field	ST2-C-259

Foreword

When MAVCC began the process for revising our Surgical Technology Series, we wanted to develop a set of instructional materials that would provide secondary and post-secondary students an opportunity to explore the careers in surgical technology. Much has been said about the need for students to have basic cognitive (knowing) and psychomotor (doing) skills to be successful in the workplace. After students have completed *Introduction to Surgical Technology*, *Surgical Techniques*, and *Surgical Procedures*, they should have the entry-level competencies to be successful in any of the surgical technology occupational areas.

This publication, *Surgical Techniques*, is designed to include the entry-level competencies students will need as a surgical technologist. They can then move on to *Surgical Procedures*. The success of this publication is due in large part to the capabilities of the personnel who worked with its development. Appreciation is extended to them for their valuable contributions to the publication.

These instructional materials are designed for student use and to assist teachers in organizing and improving instruction. These instructional materials are based on the curriculum alignment concept of first stating the objectives (objective sheet), developing instructional strategies for teaching to those objectives (information, assignment, and job sheets), and assessing to those same objectives (criterion-referenced evaluation instruments).

Every effort has been made to make these materials basic, readable, and by all means, usable. As with all of MAVCC's instructional materials, teachers must localize and personalize these materials to meet their community, classroom/laboratory, and individual student's situation. Teachers are encouraged to supplement the instructional materials and to develop strategies for motivating their students.

Special attention should be given to the matrix (page xxxvii) identifying basic academic skills being reinforced in these instructional materials, as well as each unit's teaching suggestions on ways to reinforce academic and workplace skills. By reinforcing these skills, the instructor should assist students in improving their employability skills.

As you use these instructional materials, we hope that you will find that they contribute to the quality of your program. If any problems occur or if you have any suggestions for improvement of the materials, please call or write us.

Ann Benson, Chairman
Board of Directors
Mid-America Vocational
Curriculum Consortium

Jim Steward
Executive Director
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Thanks are also extended to Mary Kellum, MAVCC Curriculum Specialist, for her assistance with the editing and coordination of this project.

Use of Introductory Materials

Introductory materials are included in the teacher guide only and contain useful information to assist administrators and teachers in planning for instruction.

In addition to the general information such as the table of contents, foreword, and acknowledgements page, information is included on the following:

1. **Use of this publication**—Explains the components of a unit of instruction and how they should be used as part of the teaching/ learning process.
2. **Competency profile**—Provides a record of student performance for each task included in a unit of instruction. This becomes a part of the student's permanent records and should be utilized when directing the student toward employment opportunities.
3. **Instructional/task analysis**—Provides a quick review of contents of the publication; identifies cognitive (knowledge) skills and psychomotor (doing) skills addressed in each unit of instruction.
4. **Related academic and workplace skills list**—Classifies unit tasks (assignment sheets and job sheets) according to related academic and workplace skills being reinforced. Skill areas reflected by skill groups, sub skills, and descriptions have been identified using *Workplace Basics: The Skills Employers Want*, developed by the American Society for Training and Development (ASTD) and the U.S. Department of Labor and adapted by MAVCC.
5. **Tools, equipment, and materials list**—Provides a comprehensive list of those items needed to successfully complete the assignment sheets and/or job sheets; assists administrator/teacher in determining program costs.
6. **Reference list**—Provides a comprehensive list of resources used in the development of this publication.

As you use these materials, it is hoped that they will provide useful information to meet a variety of needs.

Use of This Publication

Instructional units

Surgical Techniques contains eighteen units of instruction. Each instructional unit in a teacher guide includes some or all of the following basic components of a unit of instruction: objective sheet, suggested activities for the teacher, answers to assignment sheets, answers to written test, written test, unit evaluation form, teacher supplements, transparency masters, information sheet, assignment sheets, student supplements, and job sheets.

All of the unit components focus on measurable and observable learning outcomes. Teachers are encouraged to supplement, personalize, localize, and motivate with these materials in order to develop a complete teaching/learning process.

Units of instruction are designed for use in more than one lesson or class period of instruction. Careful study of each unit of instruction by the teacher will help to determine the following:

- Amount of materials that can be covered in each class period.
- Skills that must be demonstrated.
- Amount of class time needed for demonstrations.
- Amount of time needed for student practice.
- Supplementary materials, including print and nonprint media and equipment and supplies, that must be ordered.
- Resource people who must be contacted.

Objective sheet (Color code: White)

Each unit of instruction is based on performance objectives which state the goals for successful completion of the course. These performance objectives are stated in two forms: unit objectives which state the expected performance of each student after completion of the unit of instruction, and specific objectives which state what the student must do to reach the unit objective.

The objectives should be provided for students and stressed throughout the teaching/learning process. This will help answer any questions concerning performance requirements for each instructional unit. The objectives can also help determine teaching strategies and instructional methods. Teachers should prepare for each unit by deciding how each objective can best be taught.

Teachers should feel free to modify, delete, or add objectives in order to meet the needs of the students and community. When objectives are added, the teacher should remember to supply the needed information, assignment and/or job sheets, and criterion test items.

Suggested activities (Color code: Pink)

This component is included only in the teacher guide. The suggested activities assist teachers during the preparation stage of the teaching/learning process by providing an instructional plan, teaching suggestions, and a list of supplemental resources. Ways to integrate academic and workplace skills have been included in the teacher suggestions, and skill areas have been noted in bold. (A table of academic and workplace skills with accompanying definitions has been provided on page xv.) The teacher should read the suggested activities before teaching the units and decide how each objective can best be taught. Time should also be allowed to obtain supplemental materials, prepare audiovisual materials, and contact outside resources. Duties of the teacher will vary according to the particular unit.

References used in the development of each unit are listed in the suggested-activities section, along with suggested supplemental resources that may be used to teach the unit. These materials can be used by the teacher to supplement her or his knowledge of the subject area or to help students with particular interests or objectives in the area covered.

Instructions for evaluating student performance on the job sheets are also included in the suggested-activities section. Teachers should select and discuss with students the rating scale that will be used.

Assignment and written test answers (Color code: Pink)

Assignment-sheet answers and written-test answers are designed to assist the teacher in evaluation of student performances.

Written test (Color code: Yellow)

This component provides criterion-referenced evaluation of every cognitive objective listed in the unit of instruction. The test appears in the teacher guide only, but duplication is permitted for student use. If objectives have been added, deleted, or modified, appropriate changes should be made on the written test. It is recommended that the tests be divided into shorter tests covering three or four objectives at a time and given soon after those objectives have been covered. A selection of test items from the units covered may be used for final tests at the end of each term if desired.

Unit evaluation form (Color code: White)

This sheet provides teachers with a record of each student's performance on a unit of instruction. It includes space for assignment sheet ratings, job sheet ratings, written test scores, and teacher comments. The unit evaluation form is included in the teacher guide only, but may be duplicated.

Use of This Publication

Teacher supplements (Color code: White)

This component is included only in the teacher guide. Teacher supplements are optional materials for the teacher to use. They have three purposes: to provide the teacher with higher level materials to stretch the advanced student, with remedial information or practice to assist the less-advanced student, and with state-of-the-art information in which the teacher may not have background or with information that is not readily available in other books. Some teacher supplements may be duplicated for student use and are marked accordingly.

Transparency masters (Color code: White)

Transparencies are included in the teacher guide only and are used to direct the students' attention to the topic of discussion. They may provide illustrations, charts, schematics, or additional information needed to clarify and reinforce objectives included in the unit of instruction.

Information sheet (Color code: Green)

The information sheet provides the content essential for meeting the cognitive (knowledge) objectives of the unit. Teachers will find that the information sheet serves as an excellent guide for presenting background knowledge necessary to develop the skills specified in the unit objective. Students should read the information sheet before the information is discussed in class. Space is provided in margins for students and teachers to add notes that supplement, localize, personalize, or provide information for the teaching of each objective.

Student supplements (Color code: White)

Student supplements are included in the student manual. The information presented in a student supplement may consist of tables, charts, written information, forms, or other information students will need in order to complete one or more of the assignment and/or job sheets. Students are not directly tested over the information presented in a supplement; however, their ability to apply this information may be evaluated in the completion of assignment sheets or job sheets.

Assignment sheets (Color code: Tan)

Assignment sheets provide students with pencil and paper activities that give students the opportunity to make practical application of the knowledge in the information sheet. Criteria are provided to objectively evaluate student performance.

Job sheets (Color code: Blue)

The job sheets provide criteria to objectively evaluate student performance, a list of required equipment and materials, and a step-by-step procedure for performing a psychomotor skill. The teacher should discuss the equipment and materials available in the classroom and/or laboratory and demonstrate the procedure prior to having students practice procedure. When a student is ready to be evaluated, the teacher should follow instructions for evaluating student performance which may be found in the teacher guide.

Job sheets are an important segment of each unit. Job sheets provide potential employers with a picture of the skills being taught during training and the performances that might reasonably be expected from an individual who has had this training.

Disseminating material

Material may be given out a unit or page at a time to keep the material before the student always new. Some teachers ask students to furnish a three-ring binder or folder for the current unit of study. This is convenient for students taking the material home to study. Upon completion, each unit is then placed in a larger binder. Some teachers prefer to store the material by unit in filing cabinets or boxes until needed.

For best results, provide student materials for each student. Student manuals contain objective sheets, information sheets, student supplements, assignment sheets, and job sheets. Students should be allowed to take their materials home at the end of the course.

**Academic and Workplace Skills
(Classifications and Definitions)**

Skill Groups	Sub Skills	Definitions
Learning Skills	Learning to learn	Developing ability to apply knowledge to other situations; knowing how to learn.
Foundation Skills	Reading	Comprehending written information and analyzing, summarizing, and applying what has been read to a specific task.
	Writing	Communicating a thought, idea or fact in written form in a clear, concise manner.
	Math	Applying computation skills such as reasoning, estimation, and problem solving as they are actually used on the job.
	Science	Applying knowledge learned through study or practice that is based on scientific principles as they relate to specific tasks.
Communication Skills	Listening	Listening for content, conversation, long-term contexts, emotional meaning, and directions.
	Oral communication	Communicating a thought, idea, or fact in spoken form in a clear, concise manner.
Adaptability Skills	Creative thinking	Using imagination to create something new—i.e. an idea, invention, work of art.
	Problem solving (critical thinking)	Recognizing and defining problems, inventing, and implementing solutions, and tracking and evaluating results.
Personal Management Skills	Self-esteem	Developing self-confidence and creating a positive self-image.
	Motivation/goal setting	Setting and meeting defined goals and objectives.
	Personal and career development	Emphasizing self-direction by establishing and implementing a plan.
Group Effectiveness Skills	Interpersonal relations	Developing ability to maintain positive relations with others.
	Negotiation	Resolving conflict between two or more individuals.
	Teamwork	Working together in a group to reach a common goal.
Influence Skills	Organizational effectiveness	Adapting to the organization's goals, values, culture, and traditional modes of operation.
	Leadership	Directing/influencing group in performance of a specific task; accepting responsibility for others.

Surgical Techniques

Competency Profile

Name: _____

Directions: Evaluate the student using the rating scale below. Write the appropriate number to indicate the degree of competency achieved. The descriptions associated with each of the numbers focused on a level of student performance for each of the tasks listed. The written test scoreline is provided for optional teacher use. It may not be applicable in all cases.

Option A

- Rating scale:
- 4 - Skilled - Can perform job with no additional training.
 - 3 - Moderately Skilled - Has performed job during training program; limited additional training may be required.
 - 2 - Limited Skill - Has performed job during training program; additional training is required to develop skill.
 - 1 - Unskilled - Is familiar with process, but is unable to perform job.
 - 0 - No Exposure - No information or practice provided during training program, complete training required.
 - NA - Non-applicable.

Option B

- Yes - Can perform with no additional training
No - Is unable to perform satisfactorily

Section A: Aseptic Technique

Unit 1-A: Principles of Aseptic Technique

- _____ 1. Perform a 2 - 3 minute medical handwash.
- _____ 2. Open a cloth- or paper-wrapped sterile item.
- _____ 3. Open a sterile peel-pack item.
- _____ 4. Open a sterile basin on a ringstand.
- _____ 5. Pour solution.
- _____ 6. Open a sterile pack on a back table.
- _____ 7. _____

_____ Written Test Score

Unit 2-A: Scrubbing, Gowning, and Gloving

- _____ 1. Perform a surgical scrub.
- _____ 2. Dry hands after scrubbing.
- _____ 3. Put on a sterile gown.
- _____ 4. Put on sterile gloves using the closed technique.
- _____ 5. Put on sterile gloves using the open technique.
- _____ 6. Gown and glove another person.
- _____ 7. Tie and close another person's sterile gown.
- _____ 8. Remove soiled gown and gloves.
- _____ 9. _____

_____ Written Test Score

Unit 3-A: Sterilization and Disinfection

- _____ 1. Hand wash instruments.
- _____ 2. Operate a high speed steam sterilizer (autoclave).
- _____ 3. Package an item for sterilization.
- _____ 4. Disinfect an endoscope.
- _____ 5. _____

_____ Written Test Score

Unit 4-A: Operating Room Sanitation

- _____ 1. Clean up operating room after case.
- _____ 2. Clean up operating room at end of day.
- _____ 3. _____

_____ Written Test Score

Section B: Patient Care

Unit 1-B: Preoperative Routine

- _____ 1. Complete a preoperative checklist and operative consent form.
- _____ 2. Prepare a stretcher.
- _____ 3. Transport patient from room to operating room.
- _____ 4. Transfer patient from stretcher to operating room table.
- _____ 5. Transfer patient from operating room table to recovery stretcher.
- _____ 6. _____

_____ Written Test Score

Unit 2-B: Positioning, Prepping, and Draping

- _____ 1. State positions commonly used for various surgical procedures.
- _____ 2. Define the limits for preps on various surgeries.
- _____ 3. Solve problems for given draping situations.
- _____ 4. Position patient in the supine position and its variations.
- _____ 5. Position patient in the prone position and its variation.
- _____ 6. Position patient in the lateral position and its variation.
- _____ 7. Prep patient's skin for abdominal surgery.
- _____ 8. Prep patient's skin for vaginal surgery.
- _____ 9. Prep patient's skin for surgery on an extremity.
- _____ 10. Drape patient for a laparotomy.
- _____ 11. Drape patient for vaginal surgery.
- _____ 12. Drape patient for surgery on an extremity (leg).
- _____ 13. Drape a Mayo stand.
- _____ 14. Connect suction to the field.
- _____ 15. _____

_____ Written Test Score

Unit 3-B: Related Nursing Procedures

- _____ 1. Read Fahrenheit thermometers.
- _____ 2. Read centigrade thermometers.
- _____ 3. Obtain oral temperature.
- _____ 4. Assess radial pulse.
- _____ 5. Assess apical pulse.
- _____ 6. Assess apical/radial pulse.
- _____ 7. Assess respirations.
- _____ 8. Obtain blood pressure reading.
- _____ 9. _____

_____ Written Test Score

Unit 4-B: Care of Pediatric Patients

- _____ 1. Determine Apgar scores for selected newborns.
- _____ 2. _____

_____ Written Test Score

Unit 5-B: Care of Patients with Special Needs

- _____ 1. Evaluate case studies and discuss special care considerations for patients with special needs.
- _____ 2. _____

_____ Written Test Score

Unit 6-B: Care of Chronic and Terminal Patients

- _____ 1. Evaluate case studies and discuss special care considerations for chronic and terminal patients.
- _____ 2. _____

_____ Written Test Score

Section C: Supplies and Equipment

Unit 1-C: Operating Room Furniture and Equipment

- _____ 1. Position grounding pad and connect electrosurgical unit.
- _____ 2. _____

_____ Written Test Score

Unit 2-C: Instrumentation

- _____ 1. Identify basic surgical instruments.
- _____ 2. Classify basic surgical instruments according to their functions.
- _____ 3. Load and unload a scalpel blade on a scalpel handle.
- _____ 4. Pass various instruments to another person.
- _____ 5. Assemble a Balfour abdominal retractor.
- _____ 6. _____

_____ Written Test Score

Unit 3-C: Sutures and Needles

- _____ 1. Transfer suture material to sterile field.
- _____ 2. Straighten sutures
- _____ 3. Cut sutures in $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ lengths.
- _____ 4. Load and pass a needle holder with swaged needle for right- and left-handed surgeons.
- _____ 5. Load, thread, and pass a needle holder with eyed needle for right- or left-handed surgeons.
- _____ 6. Pass ties.
- _____ 7. Tag and cut sutures.
- _____ 8. _____

_____ Written Test Score

Unit 4-C: Sponges, Dressings, and Packings

- _____ 1. Construct a sponge stick.
- _____ 2. Assemble and apply a routine postoperative abdominal dressing.
- _____ 3. Apply an ostomy bag to an abdominal stoma site.
- _____ 4. Assemble and apply a Montgomery strap dressing.
- _____ 5. _____

_____ Written Test Score

Unit 5-C: Drainage Systems and Tubes

- _____ 1. Classify types of drainage systems and tubes according to their functions.
- _____ 2. Connect a Hemovac®.
- _____ 3. Connect a Jackson-Pratt®.
- _____ 4. Connect a chest tube to a closed drainage system.
- _____ 5. _____

_____ Written Test Score

Unit 6-C: Syringes and Hypodermic Needles

- _____ 1. Read syringe calibrations.
- _____ 2. Fill an irrigating syringe.
- _____ 3. Draw up medication held by a circulator.
- _____ 4. Receive medication onto sterile field.
- _____ 5. _____

_____ Written Test Score

Unit 7-C: Sponge, Sharp, and Instrument Counts

- _____ 1. Complete a count sheet.
- _____ 2. Perform a sponge, sharp, and instrument count.
- _____ 3. _____

_____ Written Test Score

Unit 8-C: Division of Duties When Establishing a Sterile Field

- _____ 1. Differentiate between the roles and responsibilities of the surgical technologist and circulator pre-, intra-, and post-operatively.
- _____ 2. Arrange a basic back table.
- _____ 3. Arrange a basic Mayo stand.
- _____ 4. Perform the surgical technologist's duties when establishing a sterile field.
- _____ 5. Perform the circulator's duties when establishing a sterile field.
- _____ 6. _____

_____ Written Test Score

COMMENTS: _____

Evaluator: _____

Date: _____

* Permission to duplicate this profile is granted.

Surgical Techniques

Instructional/Task Analysis

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

SECTION A: ASEPTIC TECHNIQUE

Unit 1-A: Principles of Aseptic Technique

- | | |
|--|---|
| 1. Terms and definitions | 9. Perform a 2 - 3 minute medical handwash |
| 2. Modes of contamination | |
| 3. Sources of contamination | 10. Open a cloth- or paper-wrapped sterile item |
| 4. Purposes of operating room attire | 11. Open a sterile peel-pack item. |
| 5. Recommendations for operating room attire | 12. Open a sterile basin on a ringstand. |
| 6. Personal hygiene | 13. Pour solution. |
| 7. Twelve principles of asepsis | 14. Open a sterile pack on a back table. |
| 8. Applications of the principles of asepsis | |

Unit 2-A: Scrubbing, Gowning, and Gloving

1. Terms and definitions
2. Purposes of the surgical scrub
3. Processes used to remove microbes from the skin
4. Methods used in performing the surgical scrub
5. Aseptic principles to follow when performing a surgical scrub
6. Equipment needed to perform a surgical scrub
7. Length of scrub

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 2-A: Scrubbing, Gowning, and Gloving (Cont.)

- | | |
|---|--|
| 8. Aseptic principles to follow when drying the hands | 14. Perform a surgical scrub |
| 9. Purposes of gowning and gloving | 15. Dry hands after scrubbing |
| 10. Methods of gowning and gloving | 16. Put on a sterile gown |
| 11. Characteristics of gowns | 17. Put on sterile gloves using the closed technique |
| 12. Characteristics of gloves | 18. Put on sterile gloves using the open technique |
| 13. Aseptic principles to follow when gowning and gloving | 19. Gown and glove another person |
| | 20. Tie and close another person's sterile gown |
| | 21. Remove soiled gown and gloves |

Unit 3-A: Sterilization and Disinfection

1. Terms and definitions
2. Sterilization, disinfection, and antisepsis
3. Most frequently used methods of sterilization
4. Factors that affect the sterilization process
5. Types of steam sterilizers
6. Principles of steam sterilization
7. Principles of ethylene oxide sterilization
8. Principles of disinfection/sterilization with activated glutaraldehyde
9. Principles of sterilization by ionizing radiation

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 3-A: Sterilization and Disinfection (Cont.)

- | | |
|--|---|
| 10. Means for monitoring the sterilization process | 23. Hand wash instruments |
| 11. Less utilized types of sterilization | 24. Operate a high speed steam sterilizer (autoclave) |
| 12. Procedure for handling contaminated instruments after the surgical procedure | 25. Package an item for sterilization |
| 13. Methods for cleaning instruments | 26. Disinfect an endoscope |
| 14. Methods for decontaminating instruments | |
| 15. Preparation of items for sterilization | |
| 16. Recommended characteristics for packaging materials | |
| 17. Methods of wrapping articles for sterilization | |
| 18. Guidelines for packaging and loading for sterilization | |
| 19. Factors that affect the disinfection of items | |
| 20. Major uses of disinfectants | |
| 21. Disinfectant agents | |
| 22. Use of liquid chemical disinfectants | |

Unit 4-A: Operating Room Sanitation

1. Difference between concurrent disinfection and terminal disinfection
2. Purposes of operating room sanitation
3. Cleaning prior to the first scheduled procedure

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 4-A: Operating Room Sanitation (Cont.)

- | | |
|---|--|
| 4. Efforts to confine contamination to the sterile area during a surgical procedure | 8. Clean up operating room after case |
| 5. After case cleanup | 9. Clean up operating room at end of day |
| 6. Terminal disinfection at the completion of the daily schedule | |
| 7. Peripheral areas of the surgical suite which require weekly cleaning | |

SECTION B: PATIENT CARE

Unit 1-B: Preoperative Routine

- | | |
|---|--|
| 1. Terms and definitions | 12. Complete a preoperative checklist and operative consent form |
| 2. Purposes of the preoperative routine | 13. Prepare a stretcher |
| 3. Procedures performed upon or prior to admission to the health care facility | 14. Transport patient from room to operating room |
| 4. Procedures performed before surgery | 15. Transfer patient from stretcher to operating room table |
| 5. Conditions required for signing an operative consent form | 16. Transfer patient from operating room table to recovery stretcher |
| 6. Purposes of an operative consent form | |
| 7. Procedures performed the morning of the surgery | |
| 8. Means for transporting a patient | |
| 9. Parts of a standard stretcher | |
| 10. Safety rules for transporting a patient on a stretcher | |
| 11. Responsibilities of the circulator when admitting the patient to the operating room | |

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 2-B: Positioning, Prepping, and Draping

- | | |
|--|---|
| 1. Three basic surgical positions | 14. State positions commonly used for various surgical procedures |
| 2. Equipment and supplies used in positioning | 15. Define the limits for preps on various surgeries |
| 3. Basic surgical positions and their variations | 16. Solve problems for given draping situations |
| 4. Surgical positions and their uses | 17. Position patient in the supine position and its variations |
| 5. Qualities of good positioning | 18. Position patient in the prone position and its variation |
| 6. Guidelines for positioning a patient | 19. Position patient in the lateral position and its variation |
| 7. Purpose of prepping | 20. Prep patient's skin for abdominal surgery |
| 8. Procedures involved in prepping | 21. Prep patient's skin for vaginal surgery |
| 9. Types of antiseptic agents used for OR skin preps | 22. Prep patient's skin for surgery on an extremity (leg) |
| 10. Purpose of draping | 23. Drape patient for a laparotomy |
| 11. Types of draping materials | 24. Drape patient for vaginal surgery |
| 12. Types of drapes | 25. Drape patient for surgery on an extremity (leg) |
| 13. Guidelines for draping | 26. Drape a Mayo stand |
| | 27. Connect suction to the field |

Unit 3-B: Related Nursing Procedures

1. Terms and definitions related to vital signs
2. Normal and abnormal heart sounds
3. Characteristics of blood pressure

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 3-B: Related Nursing Procedures (Cont.)

- | | |
|--|-----------------------------------|
| 4. Thermometers used to take patient's temperature | 16. Read Fahrenheit thermometers |
| 5. Normal temperatures and the sites where they are taken | 17. Read centigrade thermometers |
| 6. Characteristics of pulse | 18. Obtain oral temperature |
| 7. Average pulse rates according to specific groups | 19. Assess radial pulse |
| 8. Sites for taking pulse | 20. Assess apical pulse |
| 9. Terms and definitions related to respiration and breathing difficulties | 21. Assess apical/radial pulse |
| 10. Normal rates of respiration according to age groups | 22. Assess respirations |
| 11. Criteria used when assessing pulse and respiration rates | 23. Obtain blood pressure reading |
| 12. Terms and definitions related to specimens | |
| 13. Kinds of specimens | |
| 14. Care and handling of specimens | |
| 15. Special handling required for some specimens | |

Unit 4-B: Care of Pediatric Patients

1. Terms and definitions
2. Stages of pediatric development
3. Assessment of newborns
4. Major reasons for pediatric surgery
5. Hospitalization and its effects on the pediatric patient
6. Vital signs of the pediatric patient

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 4-B: Care of Pediatric Patients (Cont.)

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|---|---|
| 7. Special considerations in caring for the pediatric patient | 9. Determine Apgar scores for selected newborns |
| 8. Common surgical procedures performed on pediatric patients | |

Unit 5-B: Care of Patients with Special Needs

- | | |
|---|---|
| 1. Terms and definitions | 12. Evaluate case studies and discuss special care considerations for patients with special needs |
| 2. Characteristics of patients with special needs | |
| 3. Difference between acute and chronic patients | |
| 4. Requirements and considerations for the surgical team caring for patients with special needs | |
| 5. Care of patients with emotional/mental impairments | |
| 6. Care of patients who are physically challenged | |
| 7. Care of patients with special language, cultural, and religious needs | |
| 8. Care of patients with metabolic impairments | |
| 9. Care of patients with hematological disorders | |
| 10. Care of patients with sexually-related disorders or procedures | |
| 11. Care of patients with aseptically critical conditions | |

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 6-B: Care of Chronic and Terminal Patients

- | | |
|--|---|
| <ol style="list-style-type: none">1. Terms and definitions2. Difference between chronic and terminal illnesses3. Body aging processes which may lead to chronic problems4. Special considerations in caring for the aging patient5. Needs of the chronic and terminal patient6. Special considerations in caring for chronic and terminal patients7. Major body systems that fail and result in death8. Difference between clinical and biological death9. Stages of the grieving process10. Normal reactions to illness and disability11. Feelings the surgical team may have after the death of a patient12. Effective and ineffective coping mechanisms13. Defense mechanisms | <ol style="list-style-type: none">14. Evaluate case studies and discuss special care considerations for chronic and terminal patients |
|--|---|

SECTION C: SUPPLIES AND EQUIPMENT

Unit 1-C: Operating Room Furniture and Equipment

1. Terms and definitions
2. Basic operating room furniture
3. Basic operating room equipment

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 1-C: Operating Room Furniture and Equipment (Cont.)

- | | |
|---|---|
| 4. Uses of the surgical table and its attachments | 10. Position grounding pad and connect electrosurgical unit |
| 5. Uses of additional operating room furniture | |
| 6. Uses of operating room equipment | |
| 7. Functioning of electrosurgical units | |
| 8. Placement of the grounding pad | |
| 9. Safety standards for electrosurgical units | |

Unit 2-C: Instrumentation

- | | |
|---|--|
| 1. Terms and definitions | 15. Identify basic surgical instruments |
| 2. Parts of a surgical instrument | 16. Classify basic surgical instruments according to their functions |
| 3. Classifications of surgical instruments | 17. Load and unload a scalpel blade on a scalpel handle |
| 4. Basic cutting/dissecting instruments | 18. Pass various instruments to another person |
| 5. Basic clamping/occluding instruments | 19. Assemble a Balfour abdominal retractor |
| 6. Basic grasping/holding instruments | |
| 7. Basic retracting/exposing instruments | |
| 8. Basic viewing instruments | |
| 9. Basic suturing/stapling instruments | |
| 10. Basic suctioning/aspirating instruments | |
| 11. Basic dilating/probing instruments | |
| 12. Handling and care of surgical instruments | |
| 13. Parts of an endoscope | |
| 14. Handling and care of endoscopes | |

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 3-C: Sutures and Needles

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|---|---|
| 1. Terms and definitions | 19. Transfer suture material to sterile field |
| 2. Functions of suture material | 20. Straighten sutures |
| 3. Characteristics of suture material | 21. Cut sutures in $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ lengths |
| 4. Major types of suture materials | 22. Load and pass a needle holder with swaged needle for right- and left-handed surgeons |
| 5. Classes of suture material | 23. Load, thread, and pass a needle holder with eyed needle for right- and left-handed surgeons |
| 6. Suture selection | 24. Pass ties |
| 7. Suture techniques | 25. Tag and cut sutures |
| 8. Types of surgical stitches | |
| 9. Characteristics of retention sutures | |
| 10. Information on suture packaging | |
| 11. Suture preparation | |
| 12. Guidelines for handling suture | |
| 13. Characteristics of surgical staples and ligating clips | |
| 14. Miscellaneous products used for wound closure or hemostasis | |
| 15. Parts of a surgical needle | |
| 16. Surgical needles according to their classifications | |
| 17. Needle selection | |
| 18. Handling of surgical needles | |

Unit 4-C: Sponges, Dressings, and Packings

1. Terms and definitions
2. Uses of surgical sponges
3. Commonly used surgical sponges

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 4-C: Sponges, Dressings, and Packings (Cont.)

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|---|--|
| 4. Characteristics of surgical sponges | 10. Construct a sponge stick |
| 5. Uses of surgical dressings | 11. Assemble and apply a routine post-operative abdominal dressing |
| 6. Layers of a surgical dressing | 12. Apply an ostomy bag to an abdominal stoma site |
| 7. Use of packings | |
| 8. Specialty dressings | 13. Assemble and apply a Montgomery strap dressing |
| 9. Procedure required in the application of a sterile surgical dressing | |

Unit 5-C: Drainage Systems and Tubes

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|--|---|
| 1. Terms and definitions | 10. Classify types of drainage systems and tubes according to their functions |
| 2. Uses for catheters, drains, and tubes | 11. Connect a Hemovac® |
| 3. Placing and securing catheters, drains, and tubes | 12. Connect a Jackson-Pratt® |
| 4. Types of drainage mechanisms | 13. Connect a chest tube to a closed drainage system |
| 5. Types of gastrointestinal tubes | |
| 6. Airway tubes | |
| 7. Chest tubes | |
| 8. Types of wound drains | |
| 9. Common types of urethral catheters | |

Unit 6-C: Syringes and Hypodermic Needles

1. Terms and definitions
2. Uses for syringes
3. Characteristics of syringes
4. Parts of a syringe
5. Types of irrigating syringes

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 6-C: Syringes and Hypodermic Needles (Cont.)

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|--|---|
| 6. Types of injecting/aspirating syringes | 11. Read syringe calibrations |
| 7. Types of injecting/aspirating syringe tips | 12. Fill an irrigating syringe |
| 8. Parts of a hypodermic needle | 13. Draw up medication held by a circulator |
| 9. Hypodermic needles | 14. Receive medication onto sterile field |
| 10. Care and handling of syringes and hypodermic needles | |

Unit 7-C: Sponge, Sharp, and Instrument Counts

- | | |
|---|---|
| 1. Purposes of sponge, sharp, and instrument counts | 12. Complete a count sheet |
| 2. Count policy and procedure | 13. Perform a sponge, sharp, and instrument count |
| 3. Articles that should be included in a sponge, sharp, and instrument count | |
| 4. When counts are to be performed | |
| 5. Procedure required for the omission of counts | |
| 6. Responsibilities for counts and their documentation | |
| 7. Safety rules for achieving accurate counts of sponges, sharps, and instruments | |
| 8. Procedure required in sponge counts | |
| 9. Procedure required in sharp counts | |
| 10. Procedure required in instrument counts | |
| 11. Procedure required for an incorrect count | |

**Related Information: What
the Student Should Know**

**Application: What the
Student Should Be Able to Do**

Unit 8-C: Division of Duties When Establishing a Sterile Field

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|---|--|
| 1. Pre-operative roles and responsibilities of the surgical technologist and circulator | 4. Differentiate between the roles and responsibilities of the surgical technologist and circulator pre-, intra-, and post-operatively |
| 2. Intra-operative roles and responsibilities of the surgical technologist and circulator | 5. Arrange a basic back table |
| 3. Post-operative roles and responsibilities of the surgical technologist and circulator | 6. Arrange a basic Mayo stand |
| | 7. Perform the surgical technologist's duties when establishing a sterile field |
| | 8. Perform the circulator's duties when establishing a sterile field |

Related Academic and Workplace Skills For *Surgical Techniques*

Task	Skill Group	Sub Skill	Description
SECTION A: ASEPTIC TECHNIQUE			
Unit 1-A: Principles of Aseptic Technique			
Perform a 2 - 3 minute medical handwash. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization (health care profession)
Open a cloth- or paper-wrapped sterile item. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Open a sterile peel-pack item. (J.S. 3)	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
Open a sterile basin on a ringstand. (J.S. 4)	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization

Task	Skill Group	Sub Skill	Description
Pour solution. (J.S. 5)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Open a sterile pack on a back table. (J.S. 6)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization

Unit 2-A: Scrubbing, Gowning, and Gloving

Perform a surgical scrub. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Dry hands after scrubbing. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Put on a sterile gown. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization

Task	Skill Group	Sub Skill	Description
Put on sterile gloves using the closed technique. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Put on sterile gloves using the open technique. (J.S. 5)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Gown and glove another person. (J.S. 6)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
Tie and close another person's sterile gown. (J.S. 7)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
Remove soiled gown and gloves. (J.S. 8)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of aseptic technique
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal

Task	Skill Group	Sub Skill	Description
Unit 3-A: Sterilization and Disinfection			
Hand wash instruments. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of disinfection
	Influence Skills	Organizational Effectiveness	Understands importance of disinfection to the organization
Operate a high speed steam sterilizer (autoclave). (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of sterilization
	Influence Skills	Organizational Effectiveness	Understands importance of sterilization to the organization
Package an item for sterilization. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of sterilization
	Influence Skills	Organizational Effectiveness	Understands importance of sterilization to the organization
Disinfect an endoscope. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of disinfection
	Influence Skills	Organizational Effectiveness	Understands importance of disinfection to the organization
Unit 4-A: Operating Room Sanitation			
Clean up operating room after case. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of sanitation
	Influence Skills	Organizational Effectiveness	Understands importance of sanitation to the organization

Task	Skill Group	Sub Skill	Description
Clean up operating room at end of day. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of sanitation
	Influence Skills	Organizational Effectiveness	Understands importance of sanitation to the organization

SECTION B: PATIENT CARE

Unit 1-B: Preoperative Routine

Complete a preoperative checklist and operative consent form. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; determines what information is needed
		Writing	Completes form accurately
	Influence Skills	Organizational Effectiveness	Understands importance of consent to the organization
Prepare a stretcher. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
Transport patient from room to operating room. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization

Task	Skill Group	Sub Skill	Description
Transfer patient from stretcher to operating room table. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization	
Transfer patient from operating room table to recovery stretcher. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization	
Unit 2-B: Positioning, Prepping, and Draping			
State positions commonly used for various surgical procedures. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; determines what information is needed; uses written resources as needed to obtain information; draws conclusions from what is read
		Writing	Applies rules of spelling; uses technical words
Define the limits for preps on various surgeries. (A.S. 2)	Foundation Skills	Reading	Reads and follows written directions; determines what information is needed; uses written resources as needed to obtain information; draws conclusions from what is read

Task	Skill Group	Sub Skill	Description
Solve problems for given draping situations. (A.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to new situations; recalls important details from written information; draws conclusions from what is read
		Writing	Presents answers/conclusions in a clear and understandable form; applies rules of grammar, punctuation, capitalization, and spelling
	Adaptability Skills	Problem Solving	Recognizes problems and gives solutions
Position patient in the supine position and its variations. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of human anatomy and physiology
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization
Position patient in the prone position and its variation. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of human anatomy and physiology
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization

Task	Skill Group	Sub Skill	Description
Position patient in the lateral position and its variation. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of human anatomy and physiology
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization
Prep patient's skin for abdominal surgery. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization

Task	Skill Group	Sub Skill	Description
Prep patient's skin for vaginal surgery (J.S. 5)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
Prep patient's skin for surgery on an extremity (leg). (J.S. 6)	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization
	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
Teamwork		Works effectively with others to reach a common goal	
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization

Task	Skill Group	Sub Skill	Description
Drape patient for a laparotomy. (J.S. 7)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of aseptic technique
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
Drape patient for vaginal surgery. (J.S. 8)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of aseptic technique
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
Drape patient for surgery on an extremity (leg). (J.S. 9)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of aseptic technique
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal

Task	Skill Group	Sub Skill	Description
Drape a Mayo stand. (J.S. 10)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of aseptic technique
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
Connect suction to the field. (J.S. 11)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Applies principles of body mechanics when performing task; follows safety guidelines; demonstrates understanding of aseptic technique
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal

Unit 3-B: Related Nursing Procedures

Read Fahrenheit thermometers. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; interprets drawings to obtain information
		Math	Calculates measurements
Read centigrade thermometers. (A.S. 2)	Foundation Skills	Reading	Reads and follows written directions; interprets drawings to obtain information
		Math	Calculates measurements

Task	Skill Group	Sub Skill	Description
Obtain oral temperature. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (thermometers)
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of vital signs to the organization's goal of patient care
Assess radial pulse. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (watch)
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of vital signs to the organization's goal of patient care
Assess apical pulse. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (stethoscope and watch)
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of vital signs to the organization's goal of patient care

Task	Skill Group	Sub Skill	Description
Assess apical/radial pulse. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (stethoscope and watch)
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of vital signs to the organization's goal of patient care
Assess respirations. (J.S. 5)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (watch)
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of vital signs to the organization's goal of patient care

Task	Skill Group	Sub Skill	Description
Obtain blood pressure reading. (J.S. 6)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (sphygmomanometer and stethoscope)
	Communication Skills	Oral Communication	Speaks in a clear, concise manner
		Listening	Listens for content
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of vital signs to the organization's goal of patient care

Unit 4-B: Care of Pediatric Patients

Determine Apgar scores for selected newborns. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to new situations; uses chart to obtain information
		Math	Calculates measurements

Unit 5-B: Care of Patients with Special Needs

Evaluate case studies and discuss special care considerations for patients with special needs. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; recalls important details from written information; applies information to new situations
		Writing	Presents answers/conclusions in a clear and understandable form; applies rules of grammar, punctuation, capitalization, and spelling

6-B: Care of Chronic and Terminal Patients

Evaluate case studies and discuss special care considerations for chronic and terminal patients. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; recalls important details from written information; applies information to new situations
		Writing	Presents answers/conclusions in a clear and understandable form; applies rules of grammar, punctuation, capitalization, and spelling

Task	Skill Group	Sub Skill	Description
SECTION C: SUPPLIES AND EQUIPMENT			
Unit 1-C: Operating Room Furniture and Equipment			
Position grounding pad and connect electrosurgical unit. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Science	Demonstrates understanding of electrical grounding; follows safety guidelines
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of protecting patient's rights and safety to the organization
Unit 2-C: Instrumentation			
Identify basic surgical instruments. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; recalls important details from written information
		Writing	Uses technical words; applies rules of spelling
Classify basic surgical instruments according to their functions. (A.S. 2)	Foundation Skills	Reading	Reads and follows written directions; recalls important details from written information
Load and unload a scalpel blade on a scalpel handle. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Pass various instruments to another person. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Assemble a Balfour abdominal retractor. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization

Task	Skill Group	Sub Skill	Description
Unit 3-C: Sutures and Needles			
Transfer suture material to sterile field. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Straighten sutures. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Cut sutures in $\frac{1}{2}$, $\frac{1}{5}$, and $\frac{1}{4}$ lengths. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Load and pass a needle holder with swaged needle for right- and left-handed surgeons. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Load, thread, and pass a needle holder with eyed needle for right- and left-handed surgeons. (J.S. 5)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Pass ties. (J.S. 6)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization

Task	Skill Group	Sub Skill	Description
Tag and cut sutures. (J.S. 7)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Unit 4-C: Sponges, Dressings, and Packings			
Construct a sponge stick. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
Assemble and apply a routine postoperative abdominal dressing. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Apply an ostomy bag to an abdominal stoma site. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Assemble and apply a Montgomery strap dressing. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Unit 5-C: Drainage Systems and Tubes			
Classify types of drainage systems and tubes according to their functions. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
Connect a Hemovac®. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization

Task	Skill Group	Sub Skill	Description
Connect a Jackson-Pratt®. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Connect a chest tube to a closed drainage system. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization

Unit 6-C: Syringes and Hypodermic Needles

Read syringe calibrations. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
		Writing	Records data
		Math	Takes measurements using common measuring tools (syringes)
Fill an irrigating syringe. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Draw up medication held by a circulator. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization
Receive medication onto sterile field. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique and safety to the organization

Task	Skill Group	Sub Skill	Description
Unit 7-C: Sponge, Sharp, and Instrument Counts			
Complete a count sheet. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; determines what information is needed; uses written resources as needed to obtain information; draws conclusions from what is read
		Writing	Records data; uses technical words; completes form accurately
Perform a sponge, sharp, and instrument count. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance; identifies inaccurate information/entries on written document
	Group Effectiveness Skills	Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of accuracy and safety to the organization
Unit 8-C: Division of Duties When Establishing a Sterile Field			
Differentiate between the roles and responsibilities of the surgical technologist and circulator pre-, intra-, and post-operatively. (A.S. 1)	Foundation Skills	Reading	Reads and follows written directions; recalls important details from written information
Arrange a basic back table. (J.S. 1)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization
Arrange a basic Mayo stand. (J.S. 2)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique to the organization

Task	Skill Group	Sub Skill	Description
Perform the surgical technologist's duties when establishing a sterile field. (J.S. 3)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique, protecting patient's rights, and safety to the organization
Perform the circulator's duties when establishing a sterile field. (J.S. 4)	Foundation Skills	Reading	Reads and follows written directions; applies information to job performance
	Group Effectiveness Skills	Interpersonal Relations	Applies human relations skills; cares for patient's needs
		Teamwork	Works effectively with others to reach a common goal
	Influence Skills	Organizational Effectiveness	Understands importance of aseptic technique, protecting patient's rights, and safety to the organization

Surgical Techniques

Tools, Equipment, and Materials List

Anesthesia screen
Armboards
Attire, proper OR
Back table
Back table cover, sterile
Balfour abdominal retractor and blades
Basin, sterile, wrapped
Blade, cautery
Blades, knife
Blanket, bath
Body rolls or appropriate abdominal support such as Wilson Frame
Bottle of sterile solution
Brush, hand with fairly stiff bristles
Brush, reusable or disposable
Case instruments, equipment, and supplies
Clamps
Cloth, soft
Connecting tubing
Connector, straight
Cotton balls or foam sponges
Count sheet
Detergent-germicide
Drape sheet, unsterile plastic or non-absorbable
Drapes, underbuttocks
Drawsheets or rollers, optional
Dressing material
Dressing, non-adherent
Electrosurgical cord with tip
Electrosurgical pencil or bipolar forcep
Electrosurgical power unit
Endoscope
Floor scrubbing machine
Footboard and pad
Forceps, tissue
Gauze, roll of 1" roller (or umbilical tape)
Gloves, sterile
Glutaraldehyde
Gown or lab coat
Gowns, sterile
Half sheets
Hemostatic forceps (clamps), curved and straight
Hemovac® evacuator
Indicator tape, heat- or gas-sensitive (chemical)
Instruments, clean, basic set
Irrigating solution (saline)
Jackson-Pratt® drain with collection bulb
Kidney braces

Kidney rest
 Label for medication cups
 Leggings
 Linen hamper or waste receptacle
 Liners for waste receptacles, plastic
 Liners or bags for linen hampers
 Mayo stand
 Mayo stand cover, sterile
 Medication
 Medicine cups
 Montgomery strap dressing
 Nail file, metal or plastic
 Needle holders
 Needle, hypodermic
 Needle tip, cautery
 Needles
 Needles, multi-pak suture and general closure
 Operating room table
 OR records and charge slips
 Ostomy bag
 Padding
 Peel-pack item, sterile
 Pen and paper or chart
 Pillowcase, clean
 Pillows
 Pleur-evac® container or other closed drainage system
 Pregelled grounding pad and cable
 Prep set, sterile-wrapped (disposable or non-disposable)
 Prep solutions
 Processing indicator
 Retractors, hand-held
 Ringstand
 Scalpel handle with attached blade
 Scissors
 Scissors, dissecting
 Scissors, suture
 Scrub sink with foot- or knee-control
 Sharp container
 Sheets, arm
 Sheets, extremity
 Sheets, laparotomy
 Sheets, lithotomy
 Sheets, operating room table
 Sheets, split
 Sheets, stretcher
 Shoe covers
 Skin protectant such as benzoin spray
 Soap, antimicrobial or detergent
 Specimen containers and labels
 Sphygmomanometer (Mercury, aneroid, or electronic)
 Sponge forcep
 Sponges, gauze (four-by-fours)

Sponges, laparotomy
Sponges, peanuts
Sterilizer, high speed steam (autoclave) (automatic)
Stethoscope
Stirrups with foot slings
Strap, safety restraint
Stretchers
Suction bottles, clean
Suction tubing with suction tip
Surgeon's case preferences (special equipment, instruments, supplies)
Surgical reflector cleaner
Suture packet, continuous on a reel
Suture packet with swaged needle
Suture strands
Suture ties, pre-cut strands (plain or chromic)
Swabs, alcohol
Syringe, irrigating (Asepto®)
Syringe, standard Luer-Lok
Table drape, sterile
Table, small or work area
Tape, wide adhesive and adhesive spray (for Kraske position)
Thermometer, mercury-type or electronic
Thermometer sheaths
Towel clamps
Towels, paper
Towels, rolled or chest rolls
Towels, sterile
Tray, instrument
Vial of solution or medication
Wall washing equipment
Watch with second hand
Water, distilled, sterile
Wet vacuum pickup equipment or mops and buckets
Wipes, antiseptic
Wrappers, double-thickness for sterilization processing

Surgical Techniques

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Principles of Aseptic Technique

Unit 1-A

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss and demonstrate the principles of aseptic technique. The student should demonstrate these competencies by completing the job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to the principles of aseptic technique with their correct definitions.
2. Name the four modes of contamination.
3. Discuss the sources of contamination.
4. State purposes of operating room attire.
5. Complete statements concerning recommendations for operating room attire.
6. Select true statements concerning personal hygiene.
7. Describe the twelve principles of asepsis.
8. Complete statements concerning applications of the principles of asepsis.
9. Perform a 2 – 3 minute medical handwash. (Job Sheet 1)
10. Open a cloth- or paper-wrapped sterile item. (Job Sheet 2)
11. Open a sterile peel-pack item. (Job Sheet 3)
12. Open a sterile basin on a ringstand. (Job Sheet 4)
13. Pour solution. (Job Sheet 5)
14. Open a sterile pack on a back table. (Job Sheet 6)

Principles of Aseptic Technique

Unit 1-A

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:
 - TM 1—Modes of Contamination (Objective 2)
 - TM 2—Sources of Contamination (Objective 3)
 - TM 3—Operating Room Attire (Objective 5)
 - TM 4—Proper Use of a Surgical Mask (Objective 5)
 - TM 5—Sterile and Unsterile Areas (Objective 7)
 - TM 6—Opening Packs (Objective 8)
 - TM 7—Sterile Persons Passing Back-to-Back (Objective 8)
 - TM 8—Sterile Persons Passing Face-to-Face (Objective 8)
 - TM 9—Other Aseptic Techniques (Objective 8)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.

Suggested Activities

11. Discuss the student supplements. These could be used as homework assignments, daily practice exercises, or quizzes. Explain to students how you plan to evaluate the supplements, if at all.
12. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Take students to a local hospital so they can observe the operating room personnel. Site examples of aseptic technique, and what is done if there is a break in technique. This activity develops the ability to apply theory principles to real work situations and reinforces **organizational effectiveness skills**.
2. Help students memorize the twelve principles of asepsis by making posters, bulletin boards, or other visual aids. This activity reinforces **creative thinking** and **problem-solving skills**.
3. Provide examples of "Policy and Procedure" manuals from local hospitals or medical centers, and discuss specific procedures that must be followed in local institutions in order to maintain asepsis. This reinforces **science foundation skills**.

Suggested Activities

4. Show examples of cloth-wrapped, paper-wrapped, and peel-pack items. Visual demonstrations can help students learn practical applications of **science foundation skills**.
5. Discuss surgical conscience and its relation to the principles of asepsis. This discussion helps to reinforce student's **creative thinking** and **problem-solving skills**.

Resources Used in Developing This Unit

1. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
2. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nurses, Inc., 1991.
3. *Core Curriculum for Surgical Technology*. Littleton, CO: Association of Surgical Technologists, 1990.
4. Fuller, Joanna. *Surgical Technology: Principles and Practice*. Philadelphia: W. B. Saunders Co., 1986.
5. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.

Suggested Supplemental Resources (audiovisuals)

1. *Proper Surgical Attire: Fashion vs Function* - 1992
2. *Aseptic Technique: Stressing the Fundamentals* - 1990

1 - 2 are available from:

Cine-Med Distribution Center
Davis + Geck Video Library
PO Box 745
Woodbury, CT 06798
800-633-0004

Suggested Activities

3. *Basic Aseptic Technique in the Operating Room*. Available from:

AJN Company
Educational Services Division
555 West 57th Street
New York, NY 10019-2961
212-582-8820
Fax: 212-586-5462
800-CALL AJN

4. *Surgical Masks: Making an Informed Choice*

5. *3M Summit Program—A Progressive Approach to Infection Control*

- a. Module One — *Surgical Infections: Understanding Risk*
- b. Module Two — *Protective Materials: Minimizing the Risk*
- c. Module Three — *Surgical Asepsis: Managing the Risk*

4 - 5 are available from:

Education Materials for Health Professionals
3-M Educational Material
Computer Chrome
2610 University Ave
St. Paul, MN 55114
800-328-4827 Ext 1205

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Suggested Activities

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Principles of Aseptic Technique Unit 1-A

Answers to Student Supplements

Student Supplement 1

- | | | | |
|-------|-------|-------|-------|
| 1. b | 11. a | 21. c | 31. b |
| 2. c | 12. b | 22. c | 32. c |
| 3. a | 13. d | 23. d | 33. a |
| 4. d | 14. b | 24. c | |
| 5. c | 15. b | 25. c | |
| 6. b | 16. b | 26. a | |
| 7. d | 17. a | 27. d | |
| 8. c | 18. b | 28. c | |
| 9. d | 19. c | 29. a | |
| 10. c | 20. d | 30. c | |

Student Supplement 2

- | | |
|------|-------|
| 1. F | 6. T |
| 2. F | 7. T |
| 3. F | 8. F |
| 4. F | 9. T |
| 5. T | 10. T |

Student Supplement 3

1. Render and maintain an object or area completely free of pathogens
2. Transmission of microorganisms to a sterile field by moisture which has penetrated the sterile barrier
3. An individual's inner awareness of aseptic principles and adherence to aseptic technique in all situations
4. All possible head and facial hair including sideburns and neckline hair
5. Removed upon leaving the restricted area; replaced when returning to the restricted area; changed whenever wet, torn, or soiled
6. The mouth and nose completely
7. At all times in the operating room and other designated areas
8. Touching the strings only

Answers to Student Supplements

9. Tactfully remind them that masks should be either on or off, or report it to your immediate supervisor so appropriate action can be taken.
10. Sterile
11. Table level (waist level), chest level, the sleeves to 2" above the elbows
12. The seal integrity of the package, evidence of strike-through, expiration date, appearance of the heat- or gas-sensitive indicator tape, if used, or the chemical indicator
13. Consider the package unsterile and discard or reprocess
14. Consider the package unsterile and take appropriate measures
15. Always face the sterile area
16. Back-to-back; face-to-face maintaining a safe distance
17. Only the lip of the bottle
18. The edge of the sterile table by the sterile person
19. Wipe up the water. Sterile packages are to be placed on a dry field to prevent contamination.
20. Reaching down and lifting the contents straight up

Principles of Aseptic Technique Unit 1-A

Answers to Written Test

1. a. 4 f. 2 k. 14
 b. 13 g. 1 l. 6
 c. 9 h. 11 m. 15
 d. 3 i. 7
 e. 5 j. 12

2. a. Physical contact between a nonsterile and a sterile surface
 b. Nonsterile moisture droplets falling on a sterile surface
 c. Airborne contaminants circulating over a sterile surface
 d. Hematogenous

3. a. Any one: Respiratory tract, skin, hair, or clothes and shoes
 b. Any one: Respiratory tract, skin, GI tract, or circulating blood
 c. Any one: Dust, air, or articles used in the wound or on the sterile field

4. Any two of the following:
 - a. To provide barriers that prevent spread of microorganisms to patient
 - b. To protect surgery personnel (from the patient and each other)
 - c. To protect the patient (from the surgery personnel and from him/herself)
 - d. To prohibit contamination of the sterile field and operative wound by direct body contact

5. a. Should
 b. Should
 c. Is not
 d. Superior
 e. Should
 f. Daily
 g. Unacceptable
 h. Before
 i. Should
 j. Removed
 k. At all times
 l. Must
 m. Are changed
 n. Cannot
 o. Strings
 p. Should
 q. Sterile, worn
 r. Should

Answers to Written Test

6. a. F d. T g. F
 b. T e. F h. T
 c. F f. T i. T
7. a. Only sterile items are used within a sterile field.
 b. Gowns are considered sterile from table level (waist level) to chest level in front including the sleeves to 2" above the elbows.
 c. Draped tables are sterile only at table level.
 d. Persons who are sterile touch only sterile items or areas; persons who are not sterile touch only unsterile items or areas.
 e. A sterile field is created as close as possible to the time of use.
 f. Sterile areas are continuously kept in view.
 g. Unsterile persons avoid reaching over a sterile field; sterile persons avoid leaning over an unsterile area.
 h. As a sterile package is opened, the edges of the wrapper are considered unsterile.
 i. Sterile persons keep within sterile areas.
 j. Unsterile persons avoid sterile areas.
 k. Destruction of the integrity of microbial barriers results in contamination.
 l. Microorganisms must be kept to an irreducible minimum.
8. a. Dry
 b. Unsterile
 c. Unsterile
 d. Back
 e. Face
 f. Always
 g. Should not
 h. Unsterile
 i. Always
 j. May not
 k. Is not
 l. May not
 m. A safe distance from
 n. Toward
 o. Far, near
 p. Turns back to
 q. Contaminated
 r. Must be pointed out immediately
 s. 12"
 t. Inner
 u. Closed

Principles of Aseptic Technique
Unit 1-A

Written Test

Name _____

Score _____

1. Match terms on the right with the correct definitions.

- _____ a. Transmission of microorganisms from person to person or from object to person and vice versa
- _____ b. Transmission of microorganisms to a sterile field by moisture that has penetrated the sterile barrier
- _____ c. Microorganisms capable of producing disease
- _____ d. To introduce microorganisms to a sterile field
- _____ e. Invasion of the body by disease-producing microorganisms and the reaction of the tissues to their presence and their toxins
- _____ f. Procedures which render and maintain an object or area completely free of pathogens; surgical asepsis
- _____ g. Absence of pathogens
- _____ h. Free of all microorganisms
- _____ i. Presence of microorganisms
- _____ j. Area around operative site including furniture covered with sterile drapes and members of the surgical team properly attired
- _____ k. An individual's inner awareness of aseptic principles and adherence to aseptic technique in all situations; professional honesty

- 1. Asepsis
- 2. Aseptic technique
- 3. Contaminate
- 4. Contamination
- 5. Infection
- 6. Modes of contamination
- 7. Nonsterile
- 8. Operating room attire
- 9. Pathogens
- 10. Resident flora
- 11. Sterile
- 12. Sterile field
- 13. Strike-through contamination
- 14. Surgical conscience
- 15. Transient flora

Written Test

- _____ l. Ways by which infecting organisms are transmitted to sterile objects
- _____ m. Organisms present on the epidermis which have been picked up through contact with other objects; easily removed by scrubbing
2. Name the four modes of contamination.
- a. _____
- b. _____
- c. _____
- d. _____
3. Discuss the sources of contamination.
- a. What is one way that personnel can be sources of contamination? _____
- _____
- b. How can the patient be a source of contamination? _____
- _____
- c. What in the environment can be a source of contamination? _____
- _____
4. State two purposes of operating room attire.
- a. _____
- b. _____
5. Complete the following statements concerning recommendations for operating room attire by circling the correct words.
- a. All personnel entering a restricted area (should, should not) be attired in operating room apparel.
- b. Apparel (should, does not need to) meet the National Fire Protection Association standards.

Written Test

- c. Operating room apparel (is, is not) worn outside the surgical suite.
- d. Scrub pants are (superior, inferior) to scrub dresses.
- e. Non-scrubbed persons (should, should not) wear warm-up jackets in the operating room.
- f. Scrub clothes should be changed (daily, weekly) or whenever they become wet or soiled.
- g. Net caps are (acceptable, unacceptable) to wear as hair covering in the operating room.
- h. Caps are to be put on (before, after) the scrub suit.
- i. If shoe covers are worn, they (should, should not) be changed whenever they become wet, soiled, or torn.
- j. Shoe covers are (removed, left on) when leaving the OR suite.
- k. Masks are worn (at all times, part of the time) in the operating room and other designated areas where open sterile supplies or scrubbed people may be present, including areas where scrub sinks are located.
- l. Masks (must, must not) cover the mouth and nose completely.
- m. Masks (are changed, do not need to be changed) between cases and when wet.
- n. A mask (can, cannot) be saved for future use by hanging it around the neck or putting it in a pocket.
- o. When removing a mask, touch only the (strings, front portion).
- p. Protective barriers (should, do not need to) be worn to reduce the risk of exposure to potentially infective materials.
- q. Sterile gloves are worn when performing (sterile, unsterile) procedures; unsterile gloves are (worn, not worn) for other tasks.
- r. Protective eyewear (should, does not need to) be worn whenever activities place one at risk for a splash to the face or eye.

Written Test

6. Select true statements concerning personal hygiene by placing a "T" or "F" next to the true or false statements.

- _____ a. Baths are to be taken weekly.
- _____ b. Hair is to be shampooed frequently.
- _____ c. Fingernails are to be short, clean, and polished.
- _____ d. Excessive makeup and fragrances should be avoided.
- _____ e. Pierced-earring studs do not need to be confined within the head covering.
- _____ f. Eyeglasses should be wiped with a cleaning solution before each operation.
- _____ g. Persons with acute infections such as colds or sore throats are allowed in the operating room if they are not coughing.
- _____ h. Hands must be washed before and after patient contact.
- _____ i. OR personnel should use hand cream regularly.

7. Describe the twelve principles of asepsis.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____
- i. _____
- j. _____

Written Test

- k. _____
- l. _____

8. Complete the following statements concerning applications of the principles of asepsis by circling the correct words.
- a. Sterile items are stored in (dry, wet) areas.
 - b. When in doubt about the sterility of an item, consider it (sterile, unsterile).
 - c. The back of a sterile gown is considered (sterile, unsterile).
 - d. Never turn your (back, front) to a sterile field.
 - e. Sterile persons (face, turn backs to) sterile areas.
 - f. An unsterile person should (always, never) face sterile areas when approaching them.
 - g. A nonsterile person (should, should not) walk between two sterile areas.
 - h. The stockinette cuff of a sterile gown is considered (sterile, unsterile).
 - i. A sterile person (always, never) keeps his/her hands in sight at or above waist level.
 - j. A sterile person (may, may not) fold his/her arms with the hands in the axillary region.
 - k. Any item which extends beyond the sterile boundary (is, is not) brought back into the sterile field.
 - l. Once drapes are placed, they (may, may not) be repositioned.
 - m. Sterile persons should stand (close, a safe distance from) a nonsterile table when draping.
 - n. The sterile person drapes a nonsterile field (away from, toward) him/herself first.
 - o. A nonsterile person opens the (far, near) side of a pack first and the (far, near) side last.
 - p. A sterile person (faces, turns back to) a nonsterile person or area when passing.
 - q. A set-up covered for future use is considered (contaminated, sterile).

Written Test

- r. A violation of sterility (can wait to be pointed out, must be pointed out immediately).
- s. An unsterile person should maintain a distance of (6", 12") from the sterile field.
- t. A peel-pack package is considered sterile only to the (inner, outer) edge of the heat seal.
- u. Doors leading into the operating room should be (closed, open).

**Principles of Aseptic Technique
Unit 1-A**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Perform a 2 – 3 Minute Medical Handwash Rating _____

Comments: _____

Job Sheet 2—Open a Cloth- or Paper-Wrapped Sterile Item Rating _____

Comments: _____

Job Sheet 3—Open a Sterile Peel-Pack Item Rating _____

Comments: _____

Job Sheet 4—Open a Sterile Basin on a Ringstand Rating _____

Comments: _____

Job Sheet 5—Pour Solution Rating _____

Comments: _____

Job Sheet 6—Open a Sterile Pack on a Back Table Rating _____

Comments: _____

Unit Evaluation Form

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

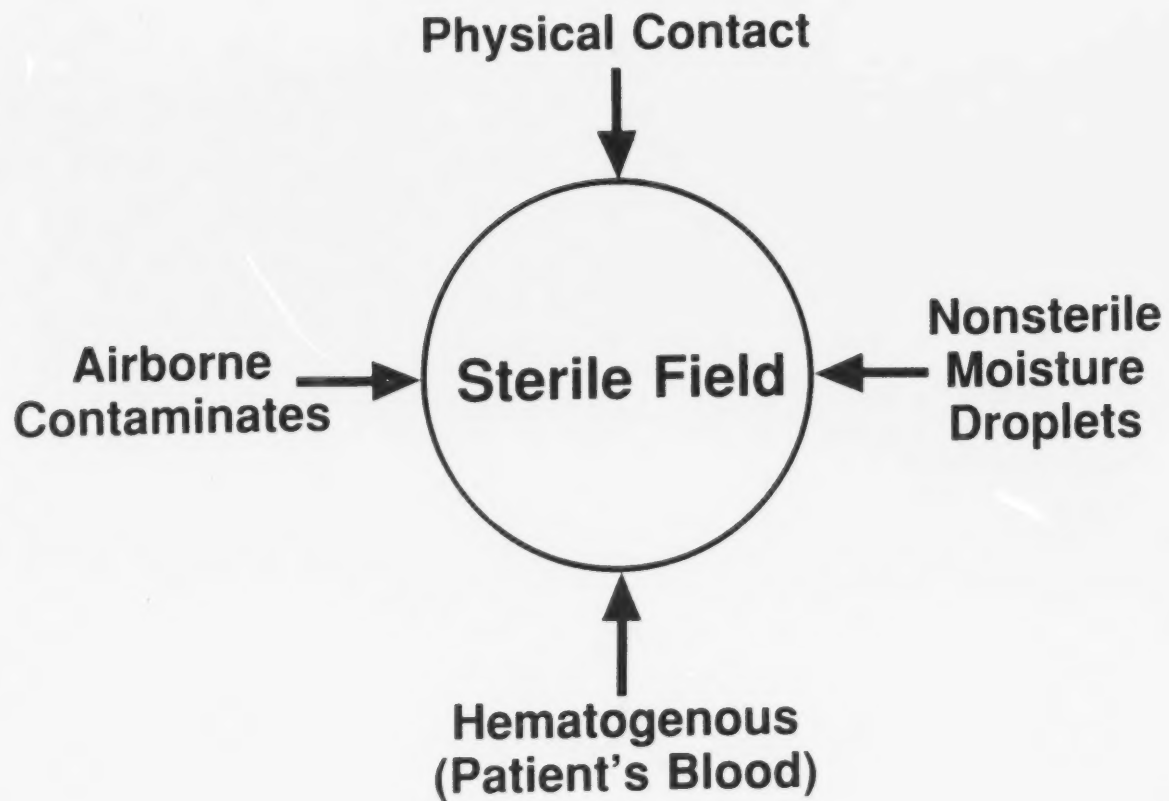
Teacher Signature _____

Date _____

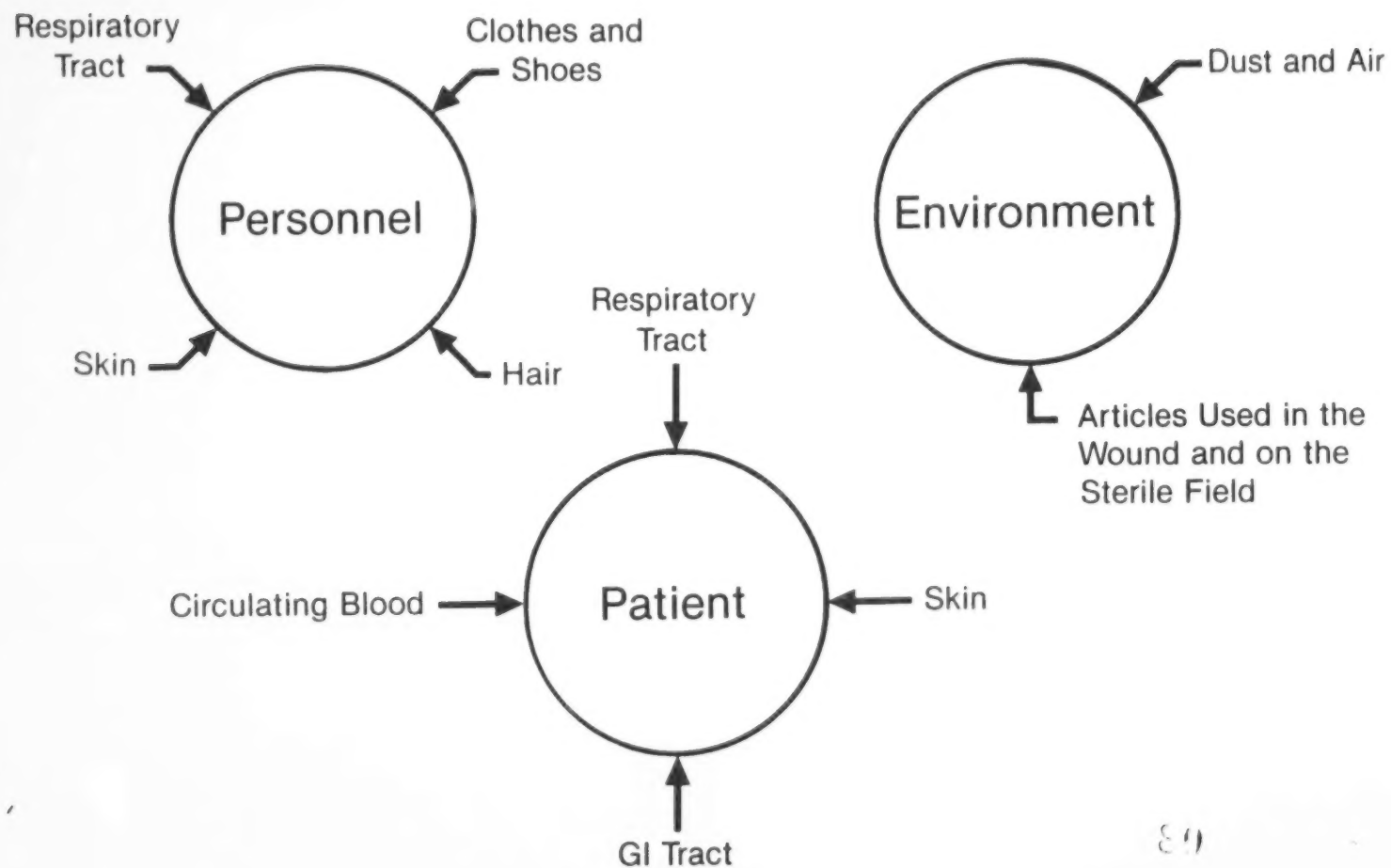
Student Signature _____

Date _____

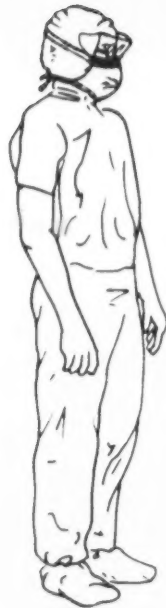
Modes of Contamination



Sources of Contamination



Operating Room Attire



Shirt and Pants



Tunic and Pants



Coverall (Jumpsuit)

Proper Use of a Surgical Mask

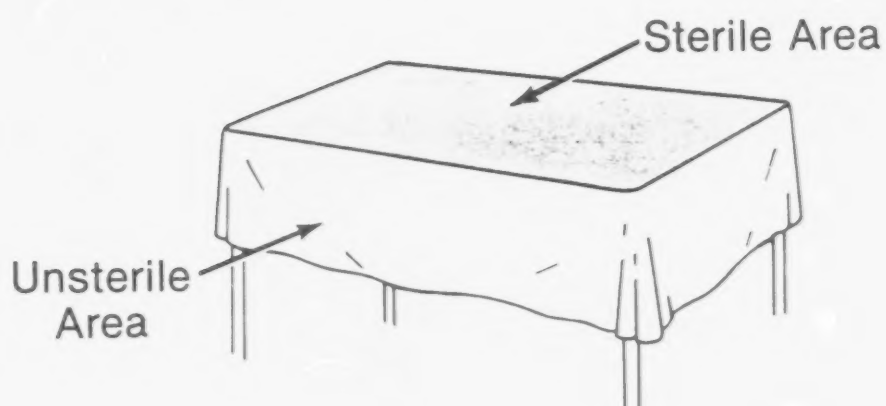
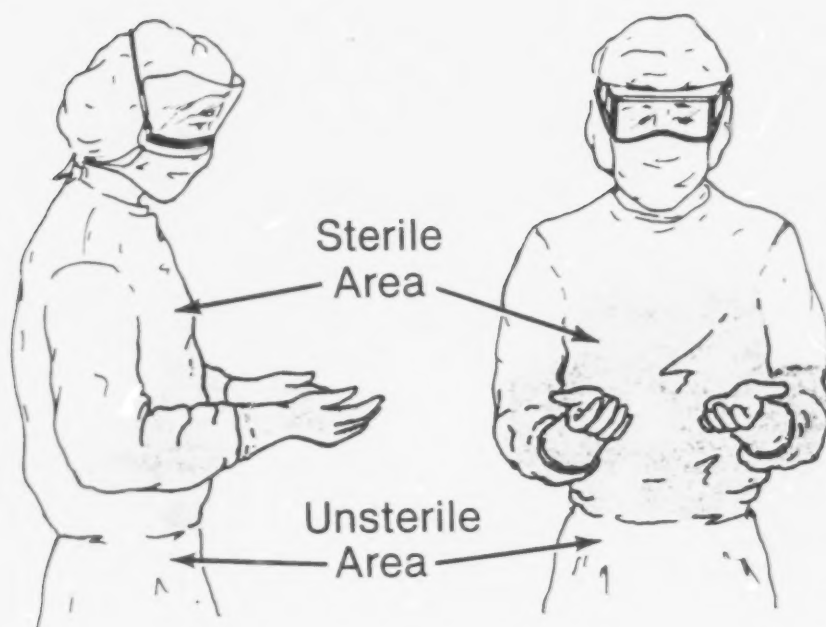


**Wearing
a Mask**

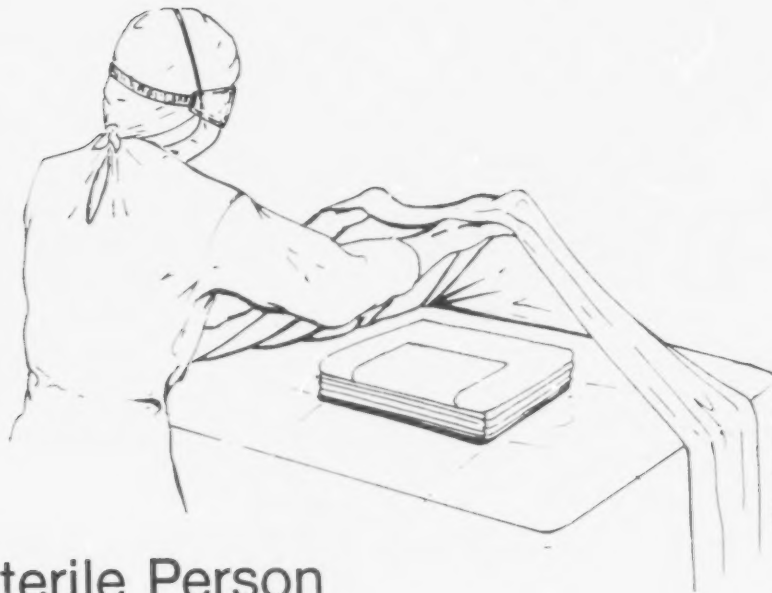


**Removing
a Mask**

Sterile and Unsterile Areas



Opening Packs



Sterile Person
(Far Side Last)

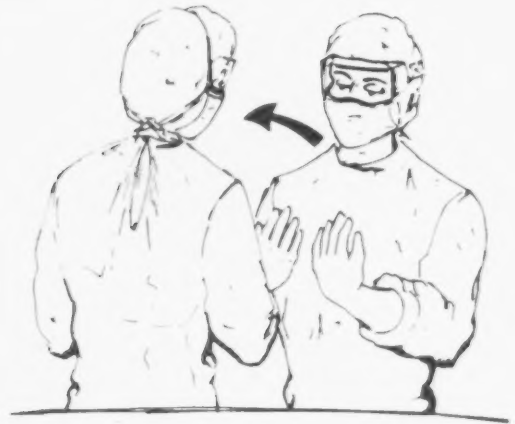


Unsterile Person
(Near Side Last)

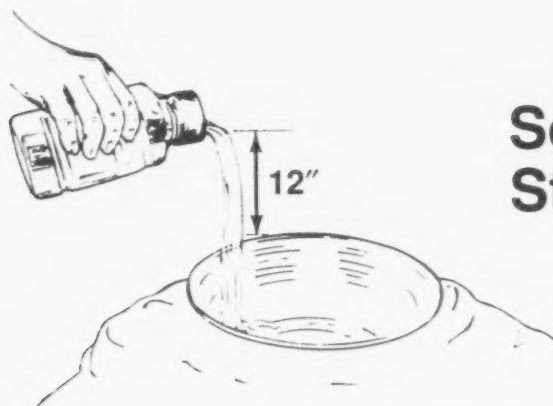
Sterile Persons Passing Back-to-Back



Sterile Persons Passing Face-to-Face

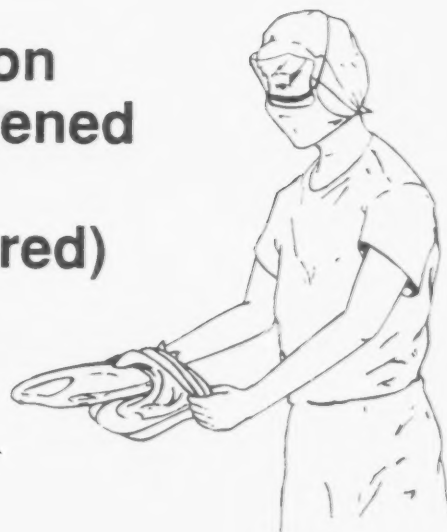


Other Aseptic Techniques



**Pouring
Solution into
Sterile Basin**

**Unsterile Person
Presenting an Opened
Sterile Item
(End Flaps Secured)**



Principles of Aseptic Technique Unit 1-A

Information Sheet

1. Terms and definitions

- a. **Asepsis** — Absence of pathogens
- b. **Aseptic technique** — Procedures which render and maintain an object or area completely free of pathogens; surgical asepsis
- c. **Contaminate** — To introduce microorganisms to a sterile field
- d. **Contamination** — Transmission of microorganisms from person to person or from object to person and vice versa
- e. **Infection** — Invasion of the body by disease-producing microorganisms and the reaction of the tissues to their presence and their toxins
- f. **Modes of contamination** — Ways by which infecting organisms are transmitted to sterile objects
- g. **Nonsterile** — Presence of microorganisms
- h. **Operating room attire** — Scrub clothes, hair coverings, masks, protective eyewear, and shoe covers which are worn by surgical personnel

Note: Sterile gown and gloves are added to this basic attire for members of the sterile surgical team.
- i. **Pathogens** — Microorganisms capable of producing disease
- j. **Resident flora** — Bacteria which are normally present below the skin surface in sebaceous glands and hair follicles; usually harmless to their host but may be pathogenic to others
- k. **Sterile** — Free of all microorganisms
- l. **Sterile field** — Area around operative site including furniture covered with sterile drapes and members of the surgical team properly attired
- m. **Strike-through contamination** — Transmission of microorganisms to a sterile field by moisture that has penetrated the sterile barrier
- n. **Surgical conscience** — An individual's inner awareness of aseptic principles and adherence to aseptic technique in all situations; professional honesty

Information Sheet

- o. **Transient flora** — Organisms present on the epidermis which have been picked up through contact with other objects; easily removed by scrubbing

2. Modes of contamination (Figure 1)

- a. Physical contact between a nonsterile and a sterile surface

Examples: Bacterial seepage through wrapper, a punctured glove, contact by the circulator with any sterile item passed to the scrub person

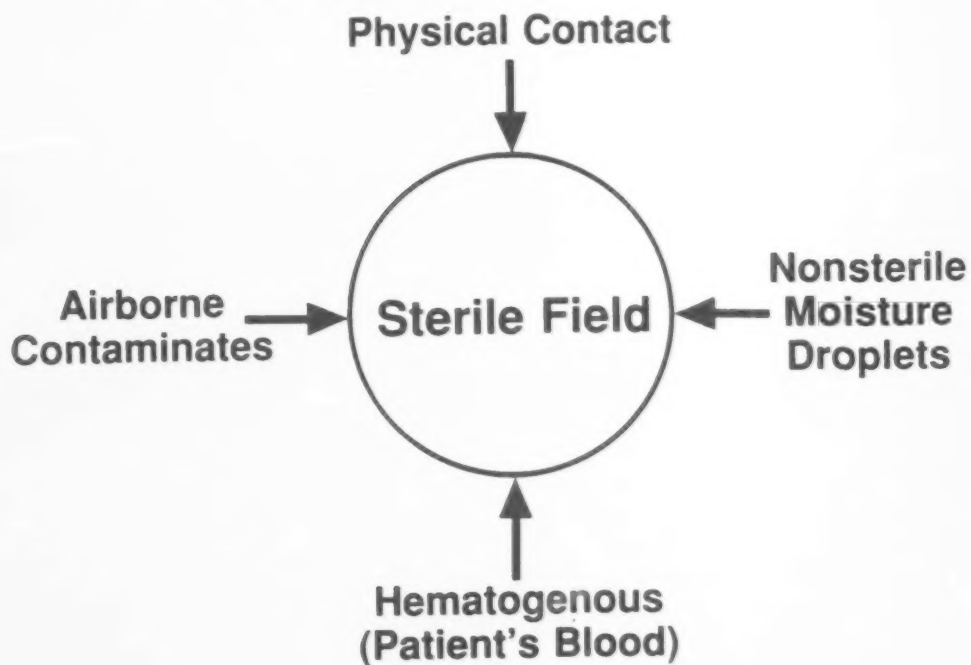
- b. Nonsterile moisture droplets falling on a sterile surface

Examples: Droplets from masks, the patient's respirations, perspiration droplets that penetrate the sterile, non-waterproof gown

- c. Airborne contaminants circulating over a sterile surface

- d. Hematogenous (from the patient's circulating blood)

Figure 1—Modes of contamination



Information Sheet

3. Sources of contamination (Figure 2)

a. Personnel

- (1) Respiratory tract — Organisms expelled by talking, coughing, or sneezing give rise to bacteria-laden dust and lint which settle on surfaces. These are usually transmitted by indirect contact.
- (2) Skin — Hair follicles, sebaceous glands, and sweat glands contain abundant resident flora. An estimated 4,000-10,000 viable particles are shed off which contain skin bacteria. Microbial shedding is controlled most effectively by maximum skin coverage.
- (3) Hair — The microbial population attracted to and shed from hair is directly related to length and cleanliness. Hair follicles and filaments harbor resident and transient flora.
- (4) Clothes and shoes

b. Patient

- (1) Respiratory tract
- (2) Skin
- (3) Gastrointestinal tract — These areas support growth of innumerable organisms and reflect the amount and kind of infection in the hospital population.
- (4) Circulating blood

c. Environment

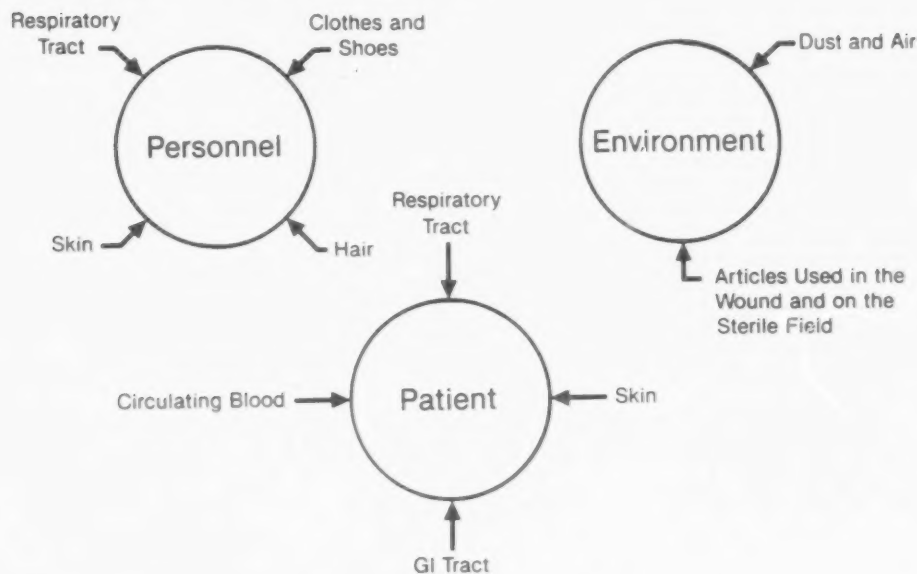
- (1) Dust and air — These are vehicles of transport for microorganisms. Air movement and currents keep these particles airborne which can settle onto open wounds and other susceptible tissue. Every movement increases the chance of wound infection.

Information Sheet

(2) Articles used in the wound and on the sterile field

Examples: Linens, instruments, sutures

Figure 2—Sources of contamination



4. Purposes of operating room attire

- To provide barriers that prevent spread of microorganisms to patient
- To protect surgery personnel (from the patient and each other)
- To protect the patient (from the surgery personnel and from him/herself)
- To prohibit contamination of the sterile field and operative wound by direct body contact

5. Recommendations for operating room attire

- All personnel entering a restricted area should be attired in operating room apparel. This includes a scrub suit, headcovering, and shoe covers.

Note: Street clothes are never worn in the restricted area.

- Apparel should be clean and meet the National Fire Protection Association standards.

Information Sheet

- c. OR attire should not be worn outside the surgical suite.

Note: Frequently hospital policy will allow lab coats to be worn over scrub suits outside the department to protect the suit from contaminants outside the department. They must be knee length and fully fastened. They are to be removed before returning to the restricted area.

- d. Apparel should be laundered only in the hospital's laundry facilities.
- e. Scrub attire should consist of a two-piece pantsuit or a one-piece coverall suit (jumpsuit).

Figure 3—OR attire



Shirt and Pants



Tunic and Pants



Coverall (Jumpsuit)

- (1) Two-piece pantsuit may have a loose fitting scrub top that should be tucked into pants, or a tunic top that fits close to the body which may be worn outside of pants.
- (2) Care should be taken to avoid dragging the pant legs on the floor when dressing.
- (3) Non-scrubbed persons should wear warm-up jackets to help contain bacterial shedding from axillae and arms.

Note: The jacket must be snapped at all times to eliminate the possibility of brushing against a sterile field.

- (4) Wearing pants, as opposed to dresses, decreases the dispersal of body slough.

Information Sheet

- f. Clean scrub clothes should be donned on arrival to the OR suite and should be changed whenever they become wet or soiled.
- g. Caps or hoods that are lint free and clean are worn to cover all possible head and facial hair including sideburns and neckline hair.

Note: Net caps are unacceptable because they do not provide a barrier to hair fallout and dandruff.

- h. Caps are put on before the scrub suit to prevent potential contamination from hair.
- i. Footwear should be easy to clean and should provide support and protection for the feet.

Note: Clogs, sandals, and soft shoes are a safety hazard and are not appropriate for use in the operating room.

- j. Shoe covers may be worn by personnel entering the semirestricted and restricted areas.
- k. Shoes restricted to wear in the OR suite or shoe covers over shoes aid in reducing microbial transfer from the outside into the OR suite.
- l. If shoe covers are worn, they should be changed whenever they become wet, soiled, or torn.
- m. Shoe covers are removed before leaving the OR suite.
- n. Masks are worn at all times in the operating room and other designated areas where open sterile supplies or scrubbed people may be present, including areas where scrub sinks are located.
- o. Masks must be at least 95% filtration efficient.
- p. Masks are changed between cases and when wet.
- q. A mask is either on or off and is not saved for future use by hanging it around the neck or putting it in a pocket.

Information Sheet

- r. Masks must cover the mouth and nose completely and be secured to prevent venting at the sides.

Figure 4—Wearing a mask



- s. When removing a mask, only the strings should be touched to reduce contamination of the hands from the nasopharyngeal area.

Figure 5—Removing a mask



Information Sheet

- t. Protective barriers should be worn to reduce the risk of exposure to potentially infective materials.

- (1) Gloves should be worn depending on the task to be performed.
- (2) Sterile gloves are worn when performing sterile procedures; unsterile gloves are worn for other tasks.
- (3) Protective eyewear should be worn whenever activities place one at risk for a splash to the face or eye.

Note: Refer to your hospital's written policies and procedures for their specific standards which may vary slightly from those listed here.

6. Personal hygiene

Note: Personal hygiene is important because it aids in the maintenance of a healthy surgical environment.

- a. Baths are to be taken daily.
- b. Hair is to be shampooed frequently.
- c. Fingernails are to be short and should not extend past fingertips.
- d. Nail polish and artificial nails should not be worn in the surgical suite.
- e. Excessive makeup and fragrances (colognes, etc.) should be avoided.

Note: Mascara, false eyelashes, and caked makeup can flake off into the wound or sterile field.

- f. Jewelry, including rings and watches, should be removed before entering restricted areas.
 - (1) Necklaces or chains can rub against the skin, increasing the risk of skin debris falling off and contaminating the wound or sterile field.
 - (2) Pierced-earring studs must be confined within the head covering. Dangling earrings are not allowed in the operating room.
- g. Eyeglasses should be wiped with a cleaning solution before each operation.
- h. Persons with acute infections such as colds or sore throats are not allowed in the operating room.

Information Sheet

- i. Hands must be washed:
- (1) Before and after work
 - (2) Before and after breaks
 - (3) Before and after direct patient contact
 - (4) After handling contaminated material or equipment
 - (5) After removing gloves

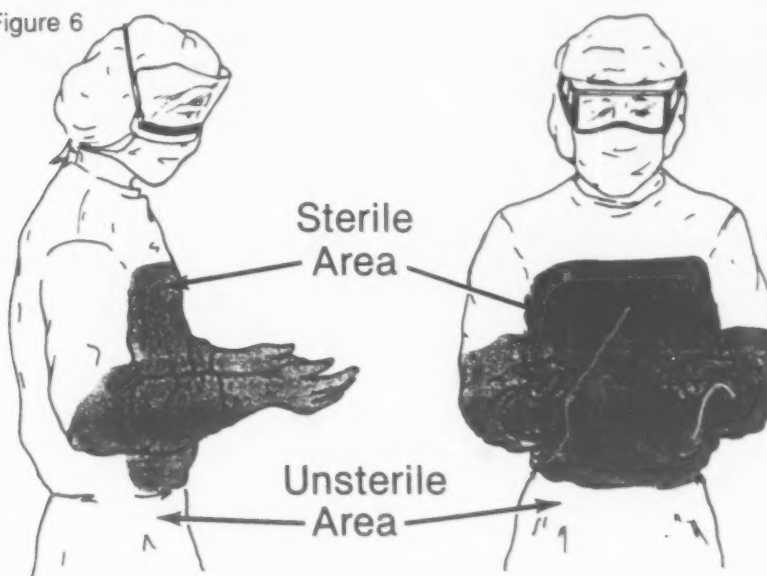
Note: Thorough handwashing is the most important single factor in the prevention of the spread of disease. This is different from and not to be confused with the surgical scrub which will be dealt with in the next unit.

- j. OR personnel should use hand cream regularly to help prevent chapped, dry skin.

7. Twelve principles of asepsis

- a. Only sterile items are used within a sterile field.
- b. Gowns are considered sterile from table level (waist level) to chest level in front including the sleeves to 2" above the elbows.

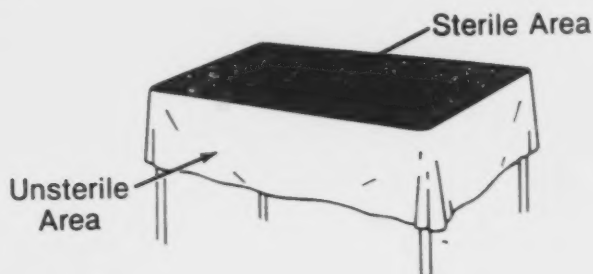
Figure 6



Information Sheet

- c. Draped tables are sterile only at the table level.

Figure 7



- d. Persons who are sterile touch only sterile items or areas; persons who are not sterile touch only unsterile items or areas.
 - e. A sterile field is created as close as possible to the time of use.
 - f. Sterile areas are continuously kept in view.
 - g. Unsterile persons avoid reaching over a sterile field; sterile persons avoid leaning over an unsterile area.
 - h. As a sterile package is opened, the edges of the wrapper are considered unsterile.
 - i. Sterile persons keep within sterile areas.
 - j. Unsterile persons avoid sterile areas.
 - k. Destruction of the integrity of microbial barriers results in contamination.
 - l. Microorganisms must be kept to an irreducible minimum.
- 8. Applications of the principles of asepsis (aseptic techniques)**
- a. Sterile items are stored in an area where they remain clean and dry.
 - b. Immediately before dispensing a sterile item, check the seal integrity of the package, evidence of strike-through, expiration date, appearance of the heat- or gas-sensitive indicator tape, if used, or the chemical indicator.

Information Sheet

- c. When in doubt about the sterility of an item, consider it unsterile.

Examples: A package found in the unsterile workroom, uncertainty about the timing or operation of a sterilizer, an item dropped on the floor, faded expiration date, waterstained wrapper, defective wrapper

Note: An item dropped on the floor is considered contaminated. If the item is wrapped, and if the wrapper is impervious, and if the area where the item is dropped is dry—the item may be opened to the sterile field. However, items that have been dropped onto the floor should not be placed back in the sterile storage areas.

- d. The back of a wraparound gown is considered unsterile.

Note: You cannot see your back, so you have no idea whether or not it has come in contact with an unsterile item.

- e. Never turn your back to a sterile field.

- f. Sterile persons face sterile areas.

- g. Unsterile persons should always face sterile areas when approaching them.

- h. A nonsterile person should never walk between two sterile areas.

- i. The stockinette cuff of a sterile gown is not considered sterile and must be covered by the gloves.

- j. A sterile person must keep his/her hands in sight at or above waist level.

- k. Arms of a sterile person are **NEVER** folded with the hands in the axillary region because of possible strike-through contamination from perspiration.

- l. Sterile persons should avoid changing levels at the sterile field, such as shifting from platform to the floor.

Note: If a sterile person must stand on a platform at the sterile field, the platform should be positioned before the person steps up to the draped area.

- m. Sterile persons should sit only when entire operative procedure will be performed in this manner.

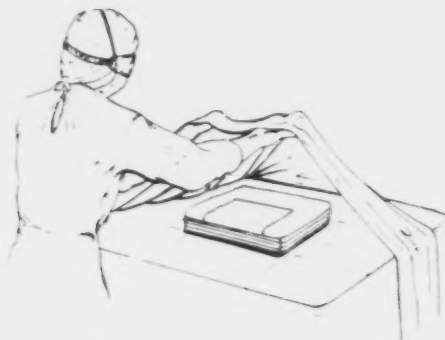
- n. Any item extending beyond the sterile boundary is considered contaminated and is **NOT** brought back into the sterile field.

Example: Suture or suction tubing that falls over edge of sterile field

Information Sheet

- o. Drapes must not be repositioned once they are placed to prevent bringing contaminants into the sterile field.
- p. Sterile persons should stand a safe distance from a nonsterile table when draping.
- q. The sterile person drapes a nonsterile field toward him/herself first to protect the sterile gown, then proceeds to drape the far side last making sure that hands are protected inside the sterile drape.

Figure 8—Opening packs—Sterile person (far side last)



- r. A nonsterile person opens the far side of a pack first and the near side last or moves to the opposite side of the table and opens the other side. A nonsterile person **NEVER** reaches over a sterile pack.

Figure 9—Opening packs—Unsterile person (near side last)



Information Sheet

- s. Sterile team members pass each other back-to-back or face-to-face maintaining a safe distance.

Figure 10—Sterile persons passing back-to-back

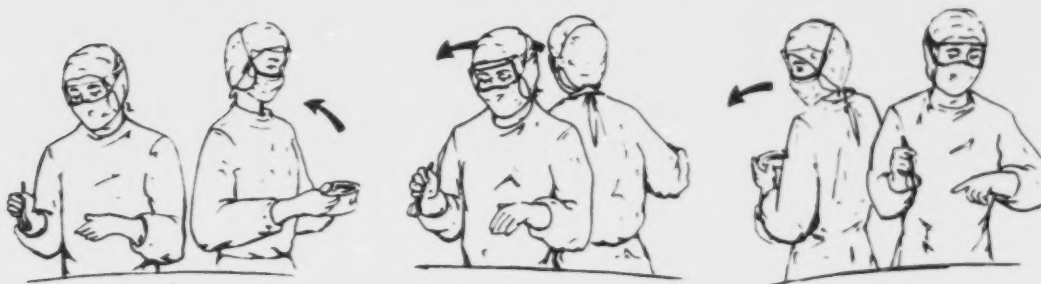


Figure 11—Sterile persons passing face-to-face

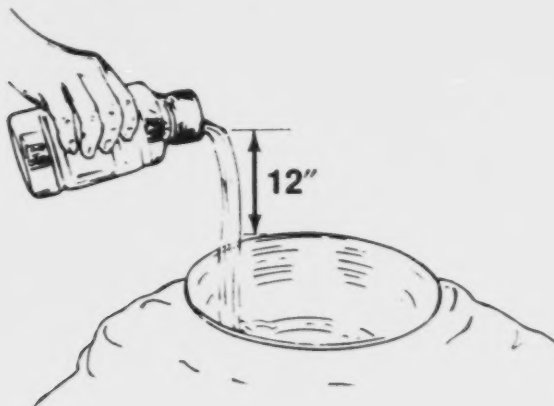


- t. A sterile person turns his/her back to a nonsterile person or area when passing.
- u. Covered or unguarded sterile set-ups should be considered contaminated.
- v. Any known or suspected violation of sterility must be pointed out immediately and corrective action taken.
- w. An unsterile person should maintain a distance of 12" from the sterile field to minimize accidental contamination.

Information Sheet

- x. When pouring solution into a sterile basin, only the lip of the bottle is held over the basin at a level of 12" above, and poured slowly. This ensures a safe margin and prevents spilling and splashing of the contents.

Figure 12—Pouring solution



- y. The container to be filled with solution should be set at the edge of the sterile table by the sterile person.
- z. When a sterile wrapper is used to drape a table, the area is sterile only to the table's edge.
- aa. A peel-pack package is considered sterile only to the **inner** edge of the heat seal. Contents should be flipped or lifted upward and not permitted to slide over edge.
- bb. Sterile packages and drapes are to be placed on a dry field to prevent strike-through contamination.
- cc. Sterile packages should be handled with clean, dry hands.
- dd. Talking must be kept to a minimum in the operating room to keep contamination from moisture droplets at a minimum.
- ee. All movement in the operating room should be kept at a minimum.
- ff. The handling of sterile items by the sterile person should be kept to a minimum.
- gg. Doors leading into the operating room should be kept closed.
- hh. Instruments used in contact with the skin are discarded and not reused.

Information Sheet

- ii. When opening sterile packages, secure the end flaps in your hand so they do not dangle loosely. Pull the last flap toward you to expose the sterile contents away from the unsterile hand.

Figure 13—Presenting an opened sterile item



- jj. Sterile persons lift contents from packages by reaching down and lifting them straight up, holding elbows high.

Note: Refer to your local hospital's policies and procedures. Slight variations may occur between institutions.

Principles of Aseptic Technique
Unit 1-A

Student Supplement 1—Review Aseptic Technique in a Multiple-Choice Format

Name _____ Date _____

Directions: Circle the letter of the correct answer.

1. Which of the following is the most important factor to be maintained throughout the operative procedure by all team members?
 - a. Constant room temperature
 - b. Aseptic technique
 - c. Suction
 - d. Silence
2. Sterile items dropped on the floor are:
 - a. Sterile, if the floor is clean
 - b. Sterile, if the item did not become soiled
 - c. Contaminated and should be discarded
 - d. Contaminated but can be used on septic procedures
3. A successful operation must be an infection-free process. To accomplish this:
 - a. Eliminate bacterial contamination as much as possible from everyone and everything in contact with the patient
 - b. Develop an unsterile conscience in all OR personnel
 - c. Spray or fog the room after each case and before the next patient enters
 - d. Install ultraviolet lights in each operating room
4. If a sterile gown becomes contaminated while donning, what should be applied prior to removal of the gown?
 - a. Unsterile gloves
 - b. Shoe covers
 - c. Nothing, just put on another gown
 - d. Sterile gloves
5. Masks in the OR are vital to the prevention of infection. Masks:
 - a. Are not necessary in an operating room when no case is in progress
 - b. May dangle below the chin when the nurse is taking a break
 - c. Must be changed between cases
 - d. Guard against transmission of infection when the scrub has a respiratory infection

Student Supplement 1

6. Good general health and personal cleanliness of personnel in the OR are an important part of:
 - a. Nosocomial infections
 - b. Aseptic technique
 - c. Biohazardous waste prevention
 - d. Universal Precautions
7. The purpose of wearing scrub clothes in the OR is to:
 - a. Provide for standardization of uniforms
 - b. Prevent staining and contamination of personal clothing
 - c. Provide personal comfort for personnel
 - d. Prevent cross-contamination
8. In surgery, all interests are centered around the:
 - a. Surgeon
 - b. Surgical technologist
 - c. Patient
 - d. OR supervisor
9. Which statement regarding sterile technique is FALSE?
 - a. Wrapper edges are unsterile.
 - b. Instruments or sutures hanging over the table are discarded.
 - c. Sterile persons pass each other back-to-back.
 - d. A sterile person faces a nonsterile person when passing.
10. Which statement regarding sterile technique is TRUE?
 - a. Sterile persons may lean on sterile tables or the draped person.
 - b. Unsterile persons pass the sterile field with their backs toward it.
 - c. Only the surface level of the table draped with a sterile drape cover is considered sterile.
 - d. A sterile person passes a sterile area with his/her back toward it.
11. The sterile person drapes a nonsterile field _____ him/herself.
 - a. Toward
 - b. Away from
 - c. To the left side from
 - d. To the right side from

Student Supplement 1

12. Wheels of the OR furniture are kept clean in order to:
 - a. Prevent accidents
 - b. Prevent infection
 - c. Present a neat appearance
 - d. Facilitate moving
13. During an operation, maintaining the principles of sterile technique is the responsibility of:
 - a. The surgeon
 - b. The scrub nurse
 - c. The circulating nurse
 - d. All members of the OR team
14. Which of the following actions by the scrub nurse is NOT an acceptable sterile technique?
 - a. Discarding tubing that falls below the sterile field edges without touching the contaminated part
 - b. Reaching behind sterile team members to retrieve instruments
 - c. Facing sterile areas when passing them
 - d. Stepping away from the sterile field if contaminated
15. When a sterile item is hanging or extending over the sterile table edge, the scrub tech:
 - a. Must watch closely that no one comes near it
 - b. Does not touch the part hanging below table level and discards the item
 - c. Should pull it back onto the table so it does not become contaminated
 - d. May use the item
16. Sepsis may be defined as:
 - a. A state of being free from infection
 - b. The presence of pathogenic organisms in the blood or tissues
 - c. The presence of microorganisms known as opportunists
 - d. The desired condition of a surgical wound
17. The most important part of operating room technique is:
 - a. Maintaining asepsis
 - b. Thorough understanding of anatomy
 - c. Knowing the names of all the instruments
 - d. Dexterity with sutures and instruments

Student Supplement 1

18. The minimum distance which a nonsterile person should remain from a sterile field is:
- a. 6 inches
 - b. 1 foot
 - c. 2 feet
 - d. 3 feet
19. If a sterile package falls to the floor:
- a. It may be used if the floor is clean and dry
 - b. It may be used if the wrapper is linen
 - c. It must be discarded
 - d. It may be used if the wrapper is paper or plastic
20. Fundamentals of operating room technique are:
- a. Providing safe patient care
 - b. Sharing responsibilities of the team
 - c. Following rules of asepsis
 - d. All of the above
21. The sequence in opening a sterile package is:
- a. Toward yourself, to the side, to the opposite side, away from yourself
 - b. To the side, to the opposite side, away from yourself, then toward yourself
 - c. Away from yourself, to the side, to the opposite side, toward yourself
 - d. To the side, to the opposite side, toward yourself, away from yourself
22. What part of the OR attire should be put on first?
- a. Scrub top and pants
 - b. Mask
 - c. Hair coverings
 - d. Shoe covers
23. Tables are sterile:
- a. Only on the front half of the table
 - b. Completely when draped, from table top to floor
 - c. To the bottom edge of the drape only
 - d. Only at table-top level

Student Supplement 1

24. One principle of Universal Precautions says: All room cleanup should meet criteria established for safe means of decontamination. The underlying reason is:
- a. Most organisms encountered during surgery are nonpathogenic.
 - b. The time between cases should be minimal.
 - c. Every case is considered potentially contaminated.
 - d. Infection in the postoperative period can be controlled with pain medication.
25. Which of the following is considered a break in technique?
- a. A sterile person turns his/her back to nonsterile person or area when passing.
 - b. Sterile persons face sterile area.
 - c. A sterile person folds his/her arms with his/her hands in the axillary region.
 - d. Nonsterile persons avoid sterile areas.
26. Supplies are handled in a particular way to maintain aseptic technique. All of the following statements are true, EXCEPT:
- a. Articles are sterile or not sterile. However, there are some exceptions with certain supplies.
 - b. Any table that has been draped with sterile covers is considered sterile at table top level only.
 - c. Holes and tears in wrappers signify contamination.
 - d. Moisture spilled on sterile cloth or paper surface causes contamination by wicking action from surface below.
27. All of the following statements concerning OR attire are true, EXCEPT:
- a. OR attire must be clean and laundered by the hospital laundry.
 - b. All personnel entering the restricted area should be attired in operating room apparel.
 - c. OR attire protects the surgery personnel and the patient.
 - d. OR attire must be changed between each surgical case.
28. Sterile persons pass each other:
- a. Side to side
 - b. Front to front
 - c. Front to front or back to back
 - d. They must never pass each other during the procedure.

Student Supplement 1

29. When unsterile water comes into contact with a sterile surface such as a linen cloth wrapper, it carries bacteria with it and contaminates the cloth wrapper. This is called:
- Strike-through contamination
 - Gross soiling
 - Barrier proofing
 - Mechanical contamination
30. As a surgical technologist if you see the surgeon contaminate his glove, you should:
- Ignore it so as not to anger the surgeon.
 - Wait until the surgery is completed and report it to the OR supervisor.
 - Tell the surgeon he has contaminated his glove, ask the circulator for another pair of gloves for the surgeon, and insist he change his glove.
 - Tell the circulating nurse as she has the responsibility to inform the surgeon he has contaminated his glove.
31. Nosocomial infection refers to:
- Infections generating from the nose
 - Hospital-acquired infections
 - Home-acquired infections
 - Invasion of microbes capable of causing disease
32. The circulating nurse only used 100 cc of a 1000 cc bottle of normal saline on a 7:30 a.m. local case. She was very careful not to contaminate the pouring edge of the bottle, so she could use the remaining 900 cc on the two local cases to follow. This practice represents:
- Cost effective use of supplies
 - Acceptable procedure for local cases requiring small amounts of irrigating solution
 - Unacceptable procedure even for sequential local cases
 - Acceptable procedure according to AORN recommended practices
33. In which situation would sterility be questionable?
- If a sterilized pack is found in the unsterile workroom
 - If the surgeon turns away from the sterile field for a brow wipe
 - If the scrub drapes a nonsterile table, covering the edge nearest the body first
 - If the lip of a saline bottle is held 12" over the basin as close to the edge as possible

Principles of Aseptic Technique
Unit 1-A

Student Supplement 2—Review Aseptic Technique in a True-False Format

Name _____ Date _____

Directions: Circle T if the statement is true, F if it is false.

- | | | | |
|---|---|-----|--|
| T | F | 1. | Resident flora is easily removed by handwashing. |
| T | F | 2. | A set-up covered for future use is considered sterile. |
| T | F | 3. | A violation of sterility principles can wait to be pointed out, when there is a good time to do so. |
| T | F | 4. | OR attire may be worn outside the surgical suite. |
| T | F | 5. | Doors leading into the operating room should be closed. |
| T | F | 6. | Thorough handwashing is the most important single factor in the prevention of the spread of disease. |
| T | F | 7. | A sterile person turns back to a nonsterile person or area when passing. |
| T | F | 8. | An unsterile person should never face sterile areas when approaching them. |
| T | F | 9. | A nonsterile person should not walk between two sterile areas. |
| T | F | 10. | When opening sterile packages, secure the end flaps in your hand and pull the last flap toward you to expose the contents. |

Principles of Aseptic Technique
Unit 1-A

Student Supplement 3—Review Aseptic Technique in Fill-in-the-Blanks Format

Name _____ Date _____

Directions: Complete the following statements concerning aseptic technique by filling in the blanks with the correct answers.

1. Aseptic technique involves procedures which _____

2. Strike-through contamination is _____

3. Surgical conscience is described as _____

4. When caps or hoods are worn, they are to cover _____

5. Shoe covers should be _____

6. Masks must cover _____

7. Masks are worn _____

8. A mask is removed by _____

Student Supplement 3

9. When an operating room team member is seen with a mask dangling around his/her neck, one should _____

10. Only _____ items are used with a sterile field.
11. Gowns are considered sterile from _____ to _____ in front including _____.
12. Before dispensing a sterile item, check _____

13. When a sterile package is found in the unsterile workroom, one should _____

14. When an item is dropped on the floor from a case cart, one should _____

15. When approaching a sterile field, an unsterile person should _____

16. Sterile team members pass each other _____-to-_____
or _____-to-_____
17. When pouring solution into a sterile basin, _____
is held over the basin.
18. The container on the sterile field to be filled with solution should be set at _____

19. There is water on the back table. Before placing a pack on that table, you should _____

20. A sterile person removes the contents of a sterile package by _____

Principles of Aseptic Technique Unit 1-A

Job Sheet 1—Perform a 2 - 3 Minute Medical Handwash

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Completed cleanup procedure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials

Cleansing agent
Nail file (plastic or stainless steel)
Sink with hot and cold running water (preferably knee- or foot-controlled)
Paper towels
Waste receptacle

B. Procedure

- ☐ 1. Standing 6" from sink, roll up sleeves to well above the elbows.

Caution: Avoid touching sink or splashing water onto skin or clothing.

- ☐ 2. Remove all jewelry.

- ☐ 3. Turn on water to moderate flow, and adjust water temperature to lukewarm.

Note: Allow water to run throughout this procedure.

Caution: Avoid touching faucets again during this procedure.

Job Sheet 1

- ☐ 4. Obtain nail file and hold it until ready to use.
- ☐ 5. Wet hands and wrists.
- ☐ 6. Dispense a generous amount of cleansing agent into hand (approximately 1 teaspoon).
- ☐ 7. Clean each cuticle and under each fingernail with the nail file under running water, and discard into waste receptacle.

Note: Nails should be cleaned with the nail file at the beginning of the work day and as needed thereafter.

- ☐ 8. Scrub each hand and wrist to produce a lather.

Note: Use both rotary and back-and-forth rubbing motions. Hold hands and forearms downward during handwashing.

- ☐ 9. Use 10 or more firm brisk motions to scrub each palm, back of each hand, and spaces between fingers and thumb. (Figure 1)

Note: Give extra attention to interdigital spaces, knuckles, and skin around fingernails. Add more soap as necessary to maintain lather.

Figure 1



Job Sheet 1

- ☐ 10. Rinse both hands from wrist to fingertips.
- ☐ 11. Apply more cleansing agent and **repeat** procedure.
- ☐ 12. Rinse again, holding wrists under water with **hands slanting downward**.

Note: Allow excess water to drip off hands without shaking it off.

- ☐ 13. Obtain clean paper towel, and dry one hand using blotting action rather than rubbing motion.
- ☐ 14. Discard towel.
- ☐ 15. Obtain another clean paper towel, and dry the other hand.
- ☐ 16. Discard towel.
- ☐ 17. Turn off water.

Caution: If faucets are hand-operated, use a clean dry towel to turn them off; then discard towel. Faucets are considered dirty and this action will prevent contamination from direct contact with the faucet.

Evaluator's comments: _____

Principles of Aseptic Technique

Unit 1-A

Job Sheet 2—Open a Cloth- or Paper-Wrapped Sterile Item

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Completed cleanup procedure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Material — Small sterile item

B. Procedure

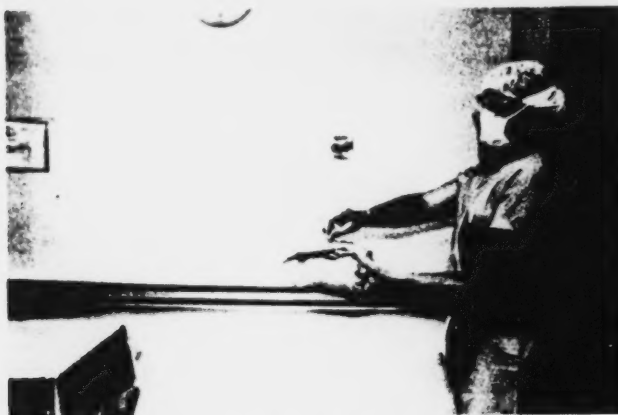
Note: Your hands should be washed prior to beginning this job sheet. Refer to Job Sheet 1 as necessary. However, you do not have to wash your hands prior to opening each sterile item.

- ☐ 1. Inspect package for seal integrity, expiration date, evidence of strike-through, appearance of heat- or gas-sensitive indicator tape, or chemical indicator. If package is unacceptable, obtain another sterile item and inspect it.
- ☐ 2. Remove outer (paper) dust cover.
- ☐ 3. Hold inner package in one hand with point of upper flap toward you.

Job Sheet 2

- ☐ 4. Grasp end of indicator tape and peel toward you.

Figure 1



- ☐ 5. Remove sterilization indicator tape and discard it.

Note: If packaging is paper, tear tape across at outer flap. Tape will remain on wrapper, since removal could tear paper wrapper and produce lint.

- ☐ 6. Lift top flap and drape it down away from package contents and secure the flap in your hand so it does not dangle loosely and contaminate sterile person and/or sterile field.

Figure 2



Job Sheet 2

- ☐ 7. Grasp point of uppermost flap and pull it evenly outward and secure it in your hand.

Caution: Avoid reaching across sterile field.

Figure 3



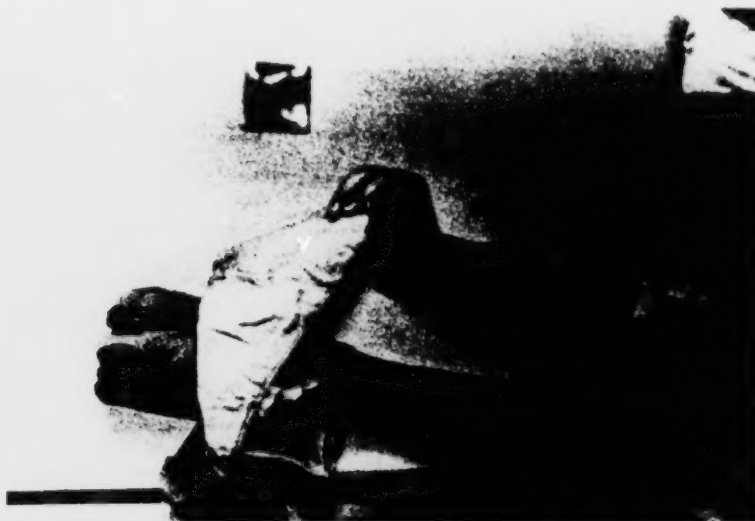
- ☐ 8. Grasp point of opposite flap and pull it evenly outward and secure it in your hand.
- ☐ 9. Grasp point of remaining flap and pull it toward you to complete the opening process and to expose the sterile contents of the package. (Figure 4)

Note: In some hospitals there are sterility indicators inside the wrapped packages which need to be checked before placing the package on the sterile field.

Job Sheet 2

Caution: Do not touch the package contents or the inner portion of the outer wrap.

Figure 4



- ☐ 10. Flip the sterile item onto the sterile field or hand it to the sterile person.

Figure 5



Job Sheet 2

- ☐ 11. Discard the wrappers in the laundry hamper or waste receptacle, whichever is applicable.

Evaluator's comments: _____

Principles of Aseptic Technique
Unit 1-A

Job Sheet 3—Open a Sterile Peel-Pack Item

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Completed cleanup procedure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

- A. Material — Sterile peel-pack item
- B. Procedure

Note: Hands should be washed prior to beginning this job sheet.

- ☐ 1. Inspect package for expiration date, seal integrity, appearance of heat- or gas-sensitive indicator tape if used, or chemical indicator. If package is unacceptable, obtain another sterile item and inspect it.

Job Sheet 3

- ☐ 2. Standing a safe distance from sterile field, grasp the two flaps of the over-wrap between your thumb and forefingers.

Figure 1



- ☐ 3. Exert a steady, even, gentle pressure while pulling package edges apart to a point about halfway down the sealed edges.
- ☐ 4. Using a rolling outward motion to make a safe cuff over your hands, flip the inner sterile item onto the sterile field (Figure 2) or present it to the sterile person.

Figure 2



Job Sheet 3

Note: Avoid leaning over the sterile field. **Do not allow the item to slide over the outermost edge.** Any area outside the inner edge of the heat seal is considered contaminated.

- ☐ 5. Discard wrapper in waste receptacle.

Evaluator's comments: _____

Principles of Aseptic Technique **Unit 1-A**

Job Sheet 4—Open a Sterile Basin on a Ringstand

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Completed cleanup procedure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials

Ringstand
Sterile basin set

B. Procedure

Note: Hands should be washed prior to beginning this job sheet.

- ☐ 1. Inspect sterile package.

Note: Refer to Job Sheet 2 for specific inspecting points.

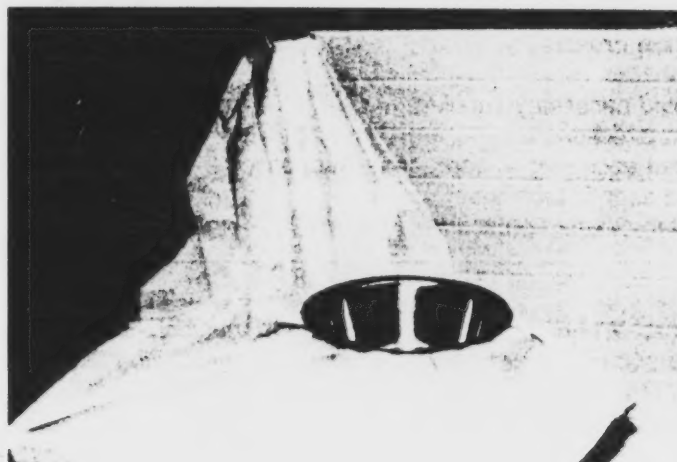
- ☐ 2. Place basin set in center of ringstand.
- ☐ 3. Remove or tear tape and discard.
- ☐ 4. Grasp uppermost fold, open pack laterally, and drape over ringstand.
- ☐ 5. Grasp opposite fold and open pack to opposite side.
- ☐ 6. Cuff your hands under the third fold and pull toward self, draping excess over side of ringstand.
- ☐ 7. Move to other side of ringstand, keeping the sterile field in view and being careful not to touch any portion of the drape.

Job Sheet 4

- ☐ 8. Cuff your hands under final fold, pull toward self, and drape excess over side of ringstand. (Figure 1)

Note: Remember to touch only the wrapper edge and to avoid reaching over the sterile field.

Figure 1



Note: Since the basins are wrapped in muslin or paper, the sterile scrub person may apply a plastic sheet to cover the ringstand making a non-permeable field.

Evaluator's comments: _____

Principles of Aseptic Technique
Unit 1-A

Job Sheet 5—Pour Solution

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Completed cleanup procedure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials

Wrapped sterile basin
Ringstand or small table
Bottle of sterile solution

B. Procedure

Note: Hands should be washed prior to beginning this job sheet.

- ☐ 1. Open a sterile basin on a ringstand (or a small table) as outlined in Job Sheet 4.

- ☐ 2. Secure bottle of sterile solution, inspect the seal, and check the label's content and expiration date.

Note: If seal is broken or a portion of the content is gone, consider the solution contaminated and obtain another bottle.

- ☐ 3. Picking up the bottle well below the rim, remove the bottle cap without contaminating the rim.

Job Sheet 5

- ☐ 4. Hold rim of bottle 12 inches above sterile container rim and slightly overlapping edge of sterile container maintaining a distance above which ensures a margin of safety.

Figure 1



- ☐ 5. Fill container approximately $\frac{2}{3}$ full.

Caution: Avoid splashing, shaking bottle, or allowing solution to drip down unsterile outer portion of bottle onto sterile field.

- ☐ 6. Discard bottle and any remaining solution.

Evaluator's comments: _____

Principles of Aseptic Technique
Unit 1-A

Job Sheet 6—Open a Sterile Pack on a Back Table

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Completed cleanup procedure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Material

Back table
Sterile pack (for a back table)

B. Procedure

Note: Hands should be washed prior to beginning this job sheet.

- ☐ 1. Inspect sterile pack.

Note: Refer to Job Sheet 2 for inspection criteria.

- ☐ 2. Inspect table (especially for moisture).

Job Sheet 6

- ☐ 3. Place pack in center of back table.

Figure 1

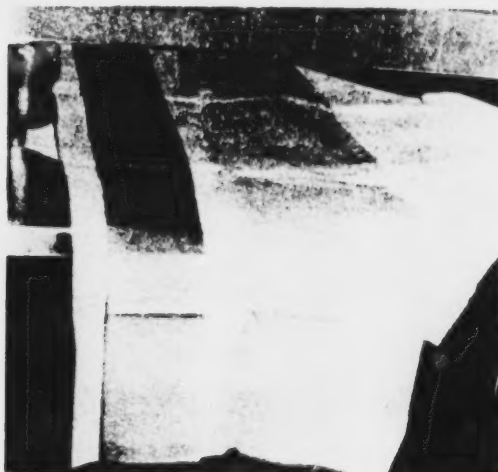


- ☐ 4. Tear the indicator tape or seal at the fold.
- ☐ 5. Grasp the uppermost fold, open the pack, and drape over the table edge.

Note: Move with the drape so activities are slow and deliberate, keeping air currents at a minimum.

- ☐ 6. Grasp the opposite fold opening it, and drape the opposite table edge.

Figure 2

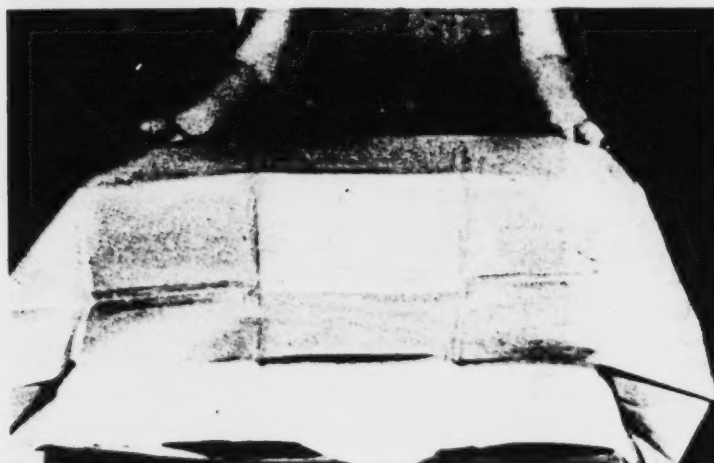


Job Sheet 6

- ☐ 7. Walk to one end of the table, grasp under the cuff of the drape, and open toward self. (Figure 3)

Caution: Maintain a safe distance between your scrub suit and the sterile drape.

Figure 3

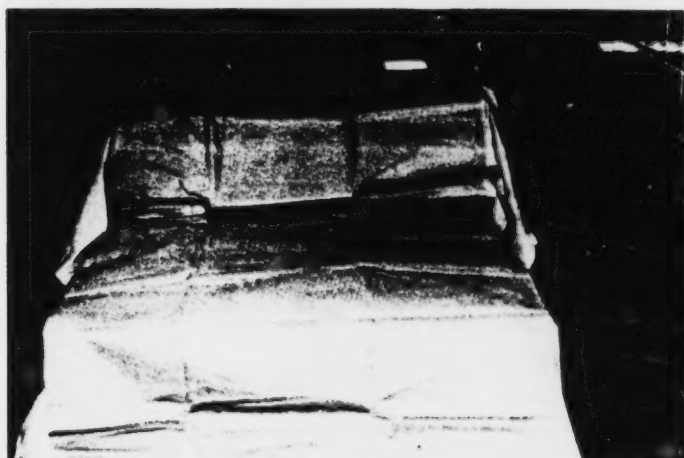


Job Sheet 6

- ☐ 8. Walk to the other end of the table, grasp the cuff of the drape, and open toward self. (Figure 4)

Caution: Avoid pulling the drape. This would move an unsterile area of the drape (on the other end) up to the sterile area on the table top.

Figure 4



Evaluator's comments: _____

Scrubbing, Gowning, and Gloving

Unit 2-A

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss and demonstrate the principles of scrubbing, gowning, and gloving. The student should demonstrate these competencies by completing the job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to scrubbing, gowning, and gloving with their correct definitions.
2. Discuss purposes of the surgical scrub.
3. Name the two processes used to remove microbes from the skin.
4. Describe the two methods used in performing the surgical scrub.
5. Complete statements concerning aseptic principles to follow when performing a surgical scrub.
6. Select true statements concerning the equipment needed to perform a surgical scrub.
7. Complete statements concerning the length of scrub.
8. Complete statements concerning aseptic principles to follow when drying the hands.
9. Discuss purposes of gowning and gloving.
10. List methods of gowning and gloving.
11. Select true statements concerning characteristics of gowns.
12. Select true statements concerning characteristics of gloves.
13. Complete statements concerning aseptic principles to follow when gowning and gloving.

Objective Sheet

14. Perform a surgical scrub. (Job Sheet 1)
15. Dry hands after scrubbing. (Job Sheet 2)
16. Put on a sterile gown. (Job Sheet 3)
17. Put on sterile gloves using the closed technique. (Job Sheet 4)
18. Put on sterile gloves using the open technique. (Job Sheet 5)
19. Gown and glove another person. (Job Sheet 6)
20. Tie and close another person's sterile gown. (Job Sheet 7)
21. Remove soiled gown and gloves. (Job Sheet 8)

Scrubbing, Gowning, and Gloving Unit 2-A

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
5. Develop teaching plan. Adjust for different learning styles.
6. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of the Unit Evaluation Form, which follows the written test section.

Delivery and Application

7. Provide students with unit of instruction.
8. Discuss unit and specific objectives.
9. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
10. Discuss the student supplement. This could be used as a homework assignment, practice exercise, or quiz. Explain to students how you plan to evaluate the supplement, if at all.
11. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Suggested Activities

Evaluation

12. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
13. Make copies of the written test. Add or modify test items as needed.
14. Give written test.
15. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Add any additional assignments or supplemental activities that should be part of the unit evaluation.
16. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Review anatomy of the skin as related to scrubbing, gowning, and gloving. **Science Foundation Skills**
2. Review proper operating room attire and personal hygiene as related to scrubbing, gowning, and gloving. **Organizational Effectiveness Skills**
3. Show videos dealing with scrubbing, gowning, and gloving. **Communication Skills**
4. Acquaint students with local hospitals' policies regarding their scrubbing, gowning, and gloving procedures. By providing specific hospital policies on scrubbing, gowning, and gloving the students can learn **influence skills, organizational effectiveness skills, personal management skills, and adaptability skills.**
5. Have students practice scrubbing with protective eyewear, masks, and caps to assist in getting familiar with proper OR attire. Doing this can help reinforce **foundation skills and adaptability skills.**

Suggested Activities

6. Provide different types of gowns and gloves for students to see and practice with. Some hospitals may use cloth gowns and some hospitals may use different brands of disposal gowns and gloves. Each company has a product that may "open differently" or have a different "feel" to it. Special consideration should be given to the types and brands of gowns and gloves used by hospitals in your area, but exposure to other types will prepare the students to adapt to other areas. This activity helps to localize the information in the unit and can reinforce **personal management skills, teamwork skills, and organizational effectiveness skills.**
7. Provide a variety of antimicrobial agents used for scrubbing. This will give students an opportunity to use all types on their own skin. Explain the differences between each type and discuss the types used in your area. This activity helps the student with **personal management skills, teamwork skills, science skills, and organizational effectiveness.**
8. Have the students do "Scrubbing Aerobics" each morning at the beginning of class. Some type of "Aerobic" music may be played on a tape recorder while one person stands at the front of the class to demonstrate as all students participate in the surgical scrub. Counting out loud by the group throughout the procedure helps keep everyone together and assures that the students "scrub" for the proper amount of time. This activity reinforces **communication skills, personal management skills, group effectiveness skills, and leadership skills.**
9. Give students plenty of time to practice their scrubbing, gowning, and gloving techniques. Practice will enhance the students' **self-esteem skills, personal career development skills, and organizational effectiveness skills.**

Resources Used in Developing This Unit

1. Rothrock, Jane, C. and Margaret Huth Meeker. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: C. V. Mosby Co., 1991.
2. Atkinson, Lucy. *Berry & Kohn's Introduction to Operating Room Technique*, 7th ed. St. Louis: C. V. Mosby Co., 1992.
3. Fuller, Joanna. *Surgical Technology: Principles and Practice*. Philadelphia: W. B. Saunders Co., 1986.
4. LeMaitre, George and Janet Finnegan. *The Patient in Surgery: A Guide for Nurses*, 4th ed. Philadelphia: W. B. Saunders Co., 1980.
5. Allmers, Nancy and Joan Verderame. *Review for The Surgical Technology Examination*, 3rd ed. Connecticut: Appleton and Range, 1993.

Suggested Activities

6. Grubb, Reba Douglass, Geraldine Ondov, and Lorraine Bagley. *Operating Room Guidelines*. St. Louis: C. V. Mosby Co., 1979.
7. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating room Nurses, Inc., 1982.
8. Brooks, Shirley. *Fundamentals of Operating Room Nursing*, 2nd ed. St. Louis: C. V. Mosby Co., 1979.
9. Lach, Judith. *O.R. Nursing: Preoperative Care and Draping Technique*. Chicago: Kendall Co., 1974.
10. Crooks, Louis. *Operating Room Techniques for the Surgical Team*. Boston: Little, Brown and Co., 1979.
11. *Asepsis: A Lippincott Learning System*. Philadelphia: J. B. Lippincott Co., 1978.
12. *Teaching the Operating Room Technician*. Englewood, CO: The Association of Operating Room Nurses, Inc., 1972.

Suggested Supplemental Resources

1. *Surgical Asepsis* video available from:
Media Department
J. B. Lippincott Co.
227 East Washington Square
Philadelphia, PA 19106
800-523-2945
2. *Scrubbing, Gowning, and Gloving: Update*, D & G-1488, 1984. Video available from:
American College of Surgeons
Surgical Video Library
Davis and Geck Distributors
1 Casper Street
Danbury, CT 06810
800-633-0004
3. *Protective Asepsis—A Contemporary Approach to Infection Control*. 1989. 14-minute videotape and study guide. Discusses handwashing, gloving, protective wearing apparel, sharps disposal, and soiled linen handling.
4. *Surgical Scrubbing, Gowning, and Gloving*. 1990. 15-minute videotape and study guide. Demonstrates surgical scrubbing, gowning (assisted and unassisted), gloving (assisted and unassisted) using open and closed methods, regloving, and removal of used gowns and gloves.

Suggested Activities

5. *Protect Thyself . . . The OSHA Way.* 1993. 17-minute videotape and study guide. Looks at three areas vital to complying with OSHA's final rule on occupational exposure to bloodborne pathogens: Engineering controls, work practice controls, and personal protective equipment.
6. *Hands in Gloves: Irritation, Allergy, and Awareness.* 1993. 15-minute videotape and study guide. Discusses the problems, preventions, and potential solutions to local and systemic reactions among glove users.

3 - 6 were developed by Johnson & Johnson Medical Inc. and are available from:

AD/COM, INC.
2003 Lamar Blvd., East
Arlington, TX 76006
800-486-8247

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

**Scrubbing, Gowning, and Gloving
Unit 2-A**

Answers to Student Supplement 1

- | | | | |
|-----|---|-----|---|
| 1. | F | 11. | F |
| 2. | T | 12. | T |
| 3. | F | 13. | F |
| 4. | F | 14. | T |
| 5. | F | 15. | F |
| 6. | T | 16. | T |
| 7. | T | 17. | F |
| 8. | F | 18. | T |
| 9. | T | 19. | F |
| 10. | F | 20. | F |

Scrubbing, Gowning, and Gloving Unit 2-A

Answers to Written Test

1.

a.	7	e.	1
b.	3	f.	2
c.	8	g.	5
d.	4		
2. Any three of the following:
 - a. To remove soil, debris, natural skin oils, hand lotion, and microorganisms from the hands and forearms of sterile team members
 - b. To decrease the number of microorganisms on the skin to an irreducible minimum
 - c. To keep the population of microorganisms minimal during the operative procedure by suppression of growth
 - d. To reduce the hazard of microbial contamination of the operative wound by skin flora
3.
 - a. Mechanical cleansing
 - b. Chemical disinfection
4. Description should include:
 - a. Numbered brush stroke method—A number of brush strokes are designated for the nails, each finger, palm, back of hand, arm, and elbow
 - b. Timed method—A prescribed amount of time is designated for scrubbing each hand, arm, and elbow area
5.
 - a. Cannot
 - b. Increase
 - c. Ideal
 - d. An unsterile
 - e. Short
 - f. (3) Hand, (4) Forearm, (5) Elbow
 - g. Higher
 - h. In front
6. a, b, c, f, h
7.
 - a. Different
 - b. 5

Answers to Written Test

- 8.
 - a. Sterile
 - b. Away from
 - c. Must be
 - d. Slightly
 - e. Without going back over an area
- 9. Any two of the following:
 - a. To allow the wearer to create and work within the sterile field
 - b. To prevent contamination of surgical supplies and equipment
 - c. To protect wearer and other personnel from contaminants
- 10. Any two of the following:
 - a. Self-gowning using the closed technique
 - b. Self-gowning using the open technique
 - c. Gowning and gloving another individual
- 11. b, d, e, g
- 12. a, f, g
- 13.
 - a. Before
 - b. Must be
 - c. Must be
 - d. Must be
 - e. Away from
 - f. Should not
 - g. Above
 - h. Contaminated
 - i. Gown
 - j. May not
 - k. Away from
 - l. Toward
 - m. Outside

Scrubbing, Gowning, and Gloving Unit 2-A

Written Test

Name _____ Score _____

1. Match the terms on the right with the correct definitions.

- | | | |
|----------|---|---------------------|
| _____ a. | Process of reducing the number of microorganisms from the hands and arms to a safe level before participating in an operative procedure | 1. Dermis |
| _____ b. | Bacterial population peculiar to a particular body location; made up of transient and resident flora | 2. Epidermis |
| _____ c. | Organisms present on the epidermis which have been picked up through contact with other objects | 3. Normal flora |
| _____ d. | Bacteria which are normally present below the skin surface in sebaceous glands and hair follicles | 4. Resident flora |
| _____ e. | Deep layer of skin, containing sebaceous and sweat glands, blood vessels, nerves, and hair roots | 5. Subungual area |
| _____ f. | Outer layer of skin which varies in thickness | 6. Surgically clean |
| _____ g. | Area under the fingernail | 7. Surgical scrub |
| | | 8. Transient flora |

2. Discuss three of the four purposes of the surgical scrub.

- a. _____

- b. _____

- c. _____

- _____

Written Test

3. Name the two processes used to remove microbes from the skin.

a. _____
b. _____

4. Describe the two methods used in performing the surgical scrub.

a. _____

b. _____

5. Complete the following statements concerning aseptic principles to follow when performing a surgical scrub by circling the correct words.

- a. The skin (can, cannot) be sterilized.
- b. There is a sharp (increase, decrease) in the number of transient flora when the surgical scrub is carried out only occasionally.
- c. The conditions under surgical gloves are (poor, ideal) for bacterial growth.
- d. If (a sterile, an unsterile) object is touched after the surgical scrub is started, the entire procedure must be repeated.
- e. Brush strokes should be firm and brisk with (short, long), circular, friction motions.
- f. The order of the scrub is as follows: (1) fingernails, (2) fingers, (3) {forearm, hand}, (4) {forearm, hand}, (5) {hand, elbow}.
- g. During and after scrubbing, the hands must be held (lower, higher) than the elbows.
- h. To prevent hitting people or objects, the scrubbed hands should be held (in front, at the sides).

Written Test

6. Select true statements concerning the equipment needed to perform a surgical scrub by placing an "X" next to the true statements.
- ☐ a. The scrub room should be adjacent to the operating room.
 - ☐ b. Sinks with knee-operated faucets are preferred over hand-operated faucets.
 - ☐ c. The sink should be deep and wide.
 - ☐ d. The scrub sink may also be used for handwashing and cleaning instruments and equipment.
 - ☐ e. Only disposable brushes can be used.
 - ☐ f. Some disposable brushes are impregnated with antiseptic-detergent agents.
 - ☐ g. All brushes are packaged with disposable nail cleaners.
 - ☐ h. The agent used for antisepsis must be a broad-spectrum antimicrobial agent.
 - ☐ i. Two popular antimicrobial agents used for surgical hand scrubs are iodine and alcohol.
7. Complete the following statements concerning the length of scrub by circling the correct answers.
- a. Hospitals have (different, the same) policies concerning the length of time to scrub.
 - b. A properly executed surgical scrub takes (5, 10, 20) minutes.
8. Complete the following statements concerning aseptic principles to follow when drying the hands by circling the correct words.
- a. Hands and arms must be thoroughly dried with a (clean, sterile) towel.
 - b. The towel is taken from the pack by reaching down and lifting the towel straight up and (toward, away from) the sterile field.
 - c. Care (must be, need not be) taken to avoid dripping water onto the pack when reaching for the towel.
 - d. Bend (slightly, 90°) at the waist and hold the towel away from the body to prevent contaminating the towel on your scrub suit.
 - e. Drying is done using a rotating motion, moving the arms and not the towel from fingertips to elbow (going back over areas as needed, without going back over an area).

Written Test

9. Discuss two purposes of gowning and gloving.

a. _____

b. _____

10. List two methods of gowning and gloving.

a. _____

b. _____

11. Select true statements concerning characteristics of gowns by placing an "X" next to the true statements.

_____ a. Gowns are folded right side out.

_____ b. Gowns should be made of materials that establish an effective barrier.

_____ c. Gowns should be lint-free and nonporous.

_____ d. Gowns should be memory-free and possess drapability.

_____ e. Materials used must permit steam penetration.

_____ f. All gowns must be wraparound style.

_____ g. The sleeve cuffs should be completely covered by the sterile gloves.

12. Select true statements concerning characteristics of gloves by placing an "X" next to the true statements.

_____ a. Gloves may be made of latex, synthetic rubber, vinyl, or polyethylene.

_____ b. All gloves are reusable.

_____ c. Gloves are usually packaged in linen.

_____ d. Gloves are usually packaged in pairs without a cuff.

_____ e. Gloves are manufactured in full-size increments from 2-6.

Written Test

- _____ f. Gloves should fit snugly with no wrinkling, but without restricting circulation or movement.
 - _____ g. The inside and outside surfaces of disposable gloves may be prelubricated.
13. Complete the following statements concerning aseptic principles to follow when gowning and gloving by circling the correct words.
- a. (Before, After) opening gowns and gloves, inspect the package.
 - b. The powder lubricant on the outside of the gloves (must be, need not be) removed.
 - c. A torn gown (must be, need not be) changed.
 - d. A punctured glove (must be, need not be) changed.
 - e. When gowning, step (away from, toward) unsterile objects or people.
 - f. When the closed technique is used in gloving, the skin of the hands (should, should not) touch the gloves or outside of the gown cuffs.
 - g. Keep you gloved hands (above, below) waist level, below eye level, and in sight at all times.
 - h. The back of the sterile gown is considered (contaminated, sterile).
 - i. When removing gown and gloves, always remove the (gown, gloves) first.
 - j. When tying a sterile gown, the circulator (may, may not) touch the sides or front of the gown.
 - k. A contaminated glove is held (over, away from) the sterile field until removed.
 - l. When gloving another person, hold the palm of the glove (toward, away from) the person.
 - m. When gowning another person, keep your hands at the neckline and on the (inside, outside) of the gown under a protective cuff.

*Permission to duplicate this test is granted.

Scrubbing, Gowning, and Gloving
Unit 2-A

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Perform a Surgical Scrub Rating _____

Comments: _____

Job Sheet 2—Dry Hands After Scrubbing Rating _____

Comments: _____

Job Sheet 3—Put on a Sterile Gown Rating _____

Comments: _____

Job Sheet 4—Put on Sterile Gloves Using the Closed Technique Rating _____

Comments: _____

Job Sheet 5—Put on Sterile Gloves Using the Open Technique Rating _____

Comments: _____

Job Sheet 6—Gown and Glove Another Person Rating _____

Comments: _____

Unit Evaluation Form

Job Sheet 7—Tie and Close Another Person's Sterile Gown

Rating _____

Comments: _____

Job Sheet 8—Remove Soiled Gown and Gloves

Rating _____

Comments: _____

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____

Date _____

Student Signature _____

Date _____

*Permission to duplicate this form is granted.

147

Scrubbing, Gowning, and Gloving Unit 2-A

Information Sheet

1. Terms and definitions

- a. **Dermis** — Deep layer of skin, containing sebaceous and sweat glands, blood vessels, nerves, and hair roots
- b. **Epidermis** — Outer layer of skin which varies in thickness
- c. **Normal flora** — Bacterial population peculiar to a particular body location; made up of transient and resident flora
- d. **Resident flora** — Bacteria which are normally present below the skin surface in sebaceous glands and hair follicles
- e. **Subungual area** — Area under the fingernail

Note: This area is very difficult to clean and is an especially contaminated area.

- f. **Surgically clean** — Condition of the skin which exists immediately following the surgical scrub in which the bacterial flora has been reduced to be within safe limits

Note: Transient flora is decreased, but resident flora is not affected.

- g. **Surgical scrub** — Process of reducing the number of microorganisms from the hands and arms to a safe level before participating in an operative procedure
- h. **Transient flora** — Organisms present on the epidermis which have been picked up through contact with other objects

2. Purposes of the surgical scrub

- a. To remove soil, debris, natural skin oils, hand lotion, and microorganisms from the hands and forearms of sterile team members
- b. To decrease the number of microorganisms on the skin to an irreducible minimum (near zero)
- c. To keep the population of microorganisms minimal during the operative procedure by suppression of growth
- d. To reduce the hazard of microbial contamination of the operative wound by skin flora

Information Sheet

3. Processes used to remove microbes from the skin

- a. Mechanical cleansing

Note: This process uses friction by washing with water, soap or detergent, and a brush.

- b. Chemical disinfection

Note: This process removes microbes by using antimicrobial or antiseptic solution. While the action of the chemical agent is important in the process of removing microbes from the skin, the mechanical friction and effort while scrubbing are equally, if not more, important.

4. Methods used in performing the surgical scrub

- a. **Numbered brush stroke method** — A number of brush strokes are designated for the nails, each finger, palm, back of hand, arm, and elbow
- b. **Timed method** — A prescribed amount of time is designated for scrubbing each hand, arm, and elbow area

Note: Both methods of scrubbing assure sufficient exposure of all skin surfaces to friction and the antimicrobial solution. Individual attention to detail is essential.

5. Aseptic principles to follow when performing a surgical scrub

- a. Skin **cannot** be sterilized, but it can be made surgically clean by reducing the number of microbes.
- b. The number of bacteria on the epidermis are constantly replenished by the continuous secretory activity of the skin glands.
- c. The number of transient flora is reduced by frequent scrubs. Conversely, there is a sharp increase in the number of these organisms when the surgical scrub is carried out only occasionally.
- d. The conditions under surgical gloves are ideal for bacterial growth so a surgical scrub must be performed before each operative procedure.
- e. Proper operating room attire must be worn when scrubbing.

Note: This includes the scrub suit and head covers. Masks are also worn in the restricted areas. Additional items are worn only during an operation. These may include protective eyewear or a face shield, fluid proof aprons, and shoe covers.

- f. Good personal hygiene must be observed.

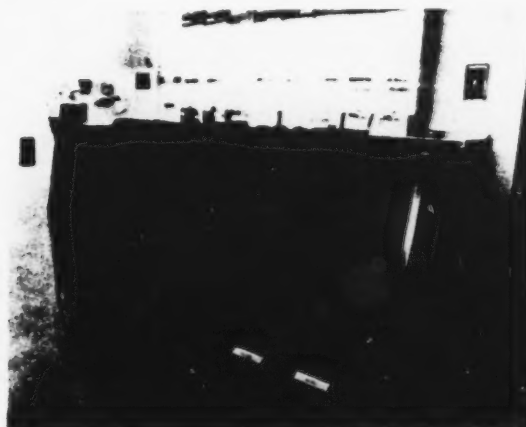
Information Sheet

- g. Fingernails should not reach beyond the fingertip to avoid glove puncture.
- h. Fingernail polish and artificial devices must not cover the natural fingernail.
- i. Brush strokes should be firm and brisk with short, circular, friction motions.
- j. The order of the scrub is as follows: (1) Fingernails, (2) Fingers, (3) Hand, (4) Forearm, (5) Elbow.
- k. Equal attention should be devoted to each surface to be scrubbed.
- l. Circular brush motion is more effective than straight strokes because it covers a larger area and is more effective in loosening bacteria and dead skin.
- m. During and after scrubbing, the hands must be held higher than the elbows to prevent water from running down the upper arms to the lower arms and hands.
- n. Scrubbed hands should be held in front of the individual to prevent touching other people or objects.

6. Equipment needed to perform a surgical scrub

- a. Scrub sinks (for all operating room members)

Figure 1



Information Sheet

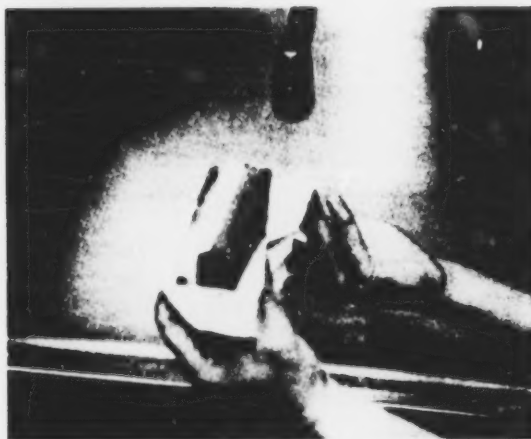
- (1) The scrub room should be adjacent to the operating room for safety and convenience.
- (2) Sinks with knee- or foot-operated faucets are preferred over hand-operated faucets because they reduce the hazard of contaminating hands after cleaning.
- (3) The sink should be deep and wide enough to prevent splash.

Note: A sterile gown cannot be put on over damp scrub attire without strike-through contamination.

- (4) The sink should be used only for scrubbing or handwashing and should **not** be used for cleaning or rinsing contaminated instruments or equipment.

b. Brushes

Figure 2



- (1) Sterilized reusable scrub brushes or disposable sponges may be used.

Note: There is no difference in microbe removal between reusable or disposable brushes.

- (2) Single-use disposable products may be a brush-sponge combination.
- (3) Some disposable brushes/sponges are impregnated with antiseptic-detergent agents.

Information Sheet

- (4) Disposable products are individually packaged.
- (5) If reusable brushes are taken from the dispenser in which they were sterilized, each brush must be removed without contaminating the others.
- (6) Brushes may be packaged with or without nail files (cleaners).
- (7) The scrub brush should not cause skin abrasion.

c. Agents for antiseptics

Figure 3



- (1) There are various antimicrobial (antiseptic) detergents on the market.
- (2) To be effective, the agents must be:

- (a) Broad-spectrum antimicrobial agents
- (b) Fast-acting and effective
- (c) Nonirritating and nonsensitizing
- (d) Prolonged-acting

Example: Leaves an antimicrobial residue on the skin to temporarily prevent growth of microorganisms

- (e) Independent of cumulative action

Information Sheet

- (3) Three popular antimicrobial agents used for surgical hand scrubs are povidone-iodine, hexachlorophene, and chlorhexidine gluconate (Hibiclens®).

Note: Most hospitals have more than one agent available in the scrub room for personnel allergic to one agent.

7. Length of scrub

- a. Hospitals have different policies concerning the length of time to scrub.

Note: Many operating rooms require an initial scrub of 10 minutes with subsequent scrubs of 3-5 minutes. You must become acquainted with the hospital's policies.

- b. A properly executed surgical scrub takes 5 minutes.

Note: Cardiovascular, thoracic, neurological, and orthopedic procedures may require a 10-minute scrub.

8. Aseptic principles to follow when drying the hands

- a. Hands and arms must be thoroughly dried with a sterile towel after scrubbing to avoid strike-through contamination of the gown.
- b. The towel is taken from the pack by reaching down and lifting the towel straight up and away from the sterile field.
- c. Care must be taken to avoid dripping water onto the pack when reaching for the towel.
- d. Bend slightly at the waist and hold the towel away from the body to prevent contaminating the towel on your scrub suit.
- e. Drying is done using a rotating motion, moving the arms and not the towel from fingertips to elbow without going back over an area.

9. Purposes of gowning and gloving

- a. To allow the wearer to create and work within the sterile field
- b. To prevent contamination of surgical supplies and equipment
- c. To protect wearer and other personnel from contaminants

Information Sheet

10. Methods of gowning and gloving

- a. Self-gowning using the **closed** technique (preferred method)

Note: This method prevents the outside of sleeve or gloves from touching the skin. The hands are covered or "closed" with the sleeves of the gown when gloves are put on.

- b. Self-gowning using the **open** technique

Note: This allows the wearer to touch the inside of the glove with the bare hands. The hands are uncovered or "open" when gloves are put on.

- c. Gowning and gloving another individual

11. Characteristics of gowns

- a. Gowns are folded inside out to prevent contamination of the exterior when picking up the gown to put it on.
- b. Gowns should be made of a single-use or reusable material that establishes an effective barrier, eliminating the passage of microorganisms between sterile and nonsterile areas.
- c. Gowns should be made of materials that are lint-free, meet the National Fire Protection Association requirements, and are sufficiently porous to eliminate heat build-up.
- d. Gowns should be memory-free and possess a high degree of drapability.
- e. Materials used in gowns must allow complete steam penetration for sterilization.
- f. Some gowns have fronts and forearms made of double thickness material or water repellant material for extra protection during long procedures.
- g. Sleeves should end at the wrist with a tightly fitted cuff.
- h. The cuffs of the sleeves should be completely covered by the sterile gloves.
- i. Gowns may be open-back or wraparound style.
- j. Gowns are fastened at the neck by snaps, ties, or Velcro® fasteners and at the waist by ties.

Information Sheet**12. Characteristics of sterile gloves**

- a. Gloves may be made of latex (most frequently used), synthetic rubber, vinyl, or polyethylene.
- b. Gloves are disposable.
- c. Gloves are packaged in peel-packs.
- d. Gloves are packaged in pairs with an everted 2-3" cuff on each glove to protect its sterility when gloving.
- e. Gloves are manufactured in standard sizes in half-size increments from 5½ to 9.
- f. Gloves should fit snugly with no wrinkling, but without restricting circulation or movement.
- g. The inside and outside surfaces of disposable gloves may be prelubricated with an absorbable dry starch powder before sterilization which prevents the sides from sticking together and eases the gloving process.

13. Aseptic principles to follow when gowning and gloving

- a. Gowning and gloving
 - (1) Before opening gowns or gloves, inspect the package for damage or wetness which would indicate contamination.
 - (2) Gown packages are preferably opened on a separate table away from other packages to avoid any chance of contamination from dripping water.
 - (3) Avoid splashing water on scrub attire during surgical scrub because moisture may contaminate the sterile gown.
 - (4) Punctured or torn gowns, gloves, or a wet gown must be changed to prevent contamination of the sterile field.
 - (5) Gowns and gloves should be lifted straight up and away from the wrapper when gowning and/or gloving.

Information Sheet

b. Gowning

- (1) When gowning, step away from unsterile objects or people to avoid hitting them, and face the sterile field.
- (2) Gowns are sterile only from waist (table) level to chest level in front including sleeves to 2" above the elbow.
- (3) The back of the sterile gown is considered contaminated.
- (4) When tying a sterile gown, the circulator should bring the gown over the shoulders by reaching inside to the shoulder and arm seams and pulling the gown on, leaving the sleeve extended over the hands. Ties or fasteners should be secured without touching the sides or front of the gown.
- (5) When gowning another person, before handing the gown, unfold it carefully by holding it at the neckband and keep your hands on the outside of the gown under a protective cuff; watch the gown gently unfold and do not allow the sleeves to touch your gown below the waist level.
- (6) When changing a gown during an operation, the gown is always removed first with the circulator pulling the gown off inside-out; then the gloves are removed using glove-to-glove and skin-to-skin technique; a rescrub is not necessary if the procedure is executed properly.

Note: The outsides should not be touched with the bare hand because both are grossly contaminated.

c. Gloving

- (1) If the glove sides adhere together making gloving impossible, the glove should be discarded and new ones obtained by the circulator.
- (2) The outside of the gloves must be wiped with a sterile damp towel; the lubricant can cause peritonitis or granuloma formation if introduced into the wound.
- (3) When the closed technique is used in gloving, the skin of the hands should not touch the gloves or the outside of the gown cuffs.
- (4) Always keep your gloved hands above waist level, below eye level, and in sight at all times.

Information Sheet

- (5) If a sterile glove is punctured or torn, it must be changed immediately to prevent escape of microorganisms from the wearer and seepage of blood and body fluids from patient into glove.

Note: Many sterile team members double-glove or wear glove liners or use stronger orthopedic gloves to reduce punctures or tears. Individual hospitals may have a policy concerning gloves.

- (6) The circulator should remove a contaminated glove by grasping the outside of the cuff about 2 inches below the top of the glove and pulling the glove inside out.
- (7) Hold a contaminated glove away from the sterile field until it can be removed.
- (8) Regloving during an operative procedure is accomplished by using the open gloving technique (assisted gloving technique).

Note: This is an area of controversy concerning which technique is preferred, and the surgical technologist should follow accepted hospital policy. Ideally, the re-gloving should be done by another sterile team member.

- (9) When gloving another person, the right glove is usually done first. Hold the palm of the glove toward the person, stretch the cuff and hold your thumbs out to avoid touching the hand. Then unfold the everted cuff over the cuff of the sleeve.

Scrubbing, Gowning, and Gloving Unit 2-A

Student Supplement 1—Review Scrubbing, Gowning, and Gloving Procedures

Name _____ Date _____

Directions: Circle "T" or "F" to indicate if the statement is true or false.

- T F 1. A properly executed surgical scrub takes 15 minutes.
- T F 2. Gown packages that are wet are considered contaminated.
- T F 3. The back of the sterile gown is considered sterile.
- T F 4. The most frequently used gloves are made of natural or synthetic rubber.
- T F 5. In the surgical scrub, the skin is sterilized to remove all microbes.
- T F 6. A surgical scrub must be performed before each operative procedure.
- T F 7. The outside of the gloves must be wiped with a sterile damp towel to remove the lubricant.
- T F 8. The proper order for a scrub is as follows: fingernails, fingers, elbow, hand, and forearm.
- T F 9. A common antimicrobial agent used for surgical scrubs is povidone-iodine.
- T F 10. Scrub sinks are also commonly used for rinsing instruments.
- T F 11. If you splash water on your scrub suit while scrubbing, you can still put on your surgical gown if the water was clean.
- T F 12. The cuffs of the gown sleeves should be completely covered by the sterile gloves.
- T F 13. Protective eyewear must be worn during the scrub.
- T F 14. Knee-operated faucets are preferred over hand-operated faucets for scrubbing.
- T F 15. Resident flora is easily removed in the surgical scrub.
- T F 16. Gowns and gloves should be lifted straight up and away from the wrapper when gowning and/or gloving.
- T F 17. When gloving another person, the left glove is always done first.
- T F 18. The hands are covered in the closed technique of gowning and gloving.
- T F 19. Brush strokes during the scrub should be delicate and slow.
- T F 20. When changing a gown during an operation, change the glove first, then the gown.

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 1—Perform a Surgical Scrub

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Rinsed all visible soap	_____
Kept hands at correct height	_____
Maintained safe distance from sink	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Scrub sink with foot- or knee-control
Antimicrobial soap or detergent
Metal or plastic nail file
Reusable or disposable brush

B. Procedure

Note: The numbered brush stroke method is used here because it is more likely to produce a thorough scrub for a person who is just learning to scrub. However, the timed method may be substituted by your instructor.

- ☐ 1. Check hands and arms for cuts, infections, or inflammation.
- ☐ 2. Check fingernails to be sure they are clean, short, and free of nail polish and/or artificial devices.
- ☐ 3. Remove all jewelry.

Job Sheet 1

- ☐ 4. Standing 6" away from sink, turn on water and regulate the temperature and flow.

Note: Water should be lukewarm and have a moderately forceful stream. It should be left running through this procedure. However hospital policy may dictate that knee- or foot-controlled faucets are to be shut off when not in use.

Caution: Avoid splashing water on skin or clothing. Avoid touching any unsterile object or surface with hands or arms at any time.

- ☐ 5. Using antimicrobial soap, wash hands and forearms briskly for 30 seconds, holding them in a downward direction.
- ☐ 6. Rinse thoroughly.
- ☐ 7. Clean fingernails and cuticles with nail file under running water.

Figure 1



Job Sheet 1

- ☐ 8. Discard nail file in appropriate waste receptacle near sink.

Note: This has been a preparatory handwash to remove surface dirt, some transient bacteria, loose skin, and other debris. From this point on, keep hands higher than elbows.

- ☐ 9. Obtain sterile brush and hold it in your hands until the entire scrub is completed.
- ☐ 10. Using antimicrobial soap, hold the brush perpendicular to the nails of the left hand and scrub vigorously 50 strokes.

Note: Each stroke is a back-and-forth motion.

Figure 2



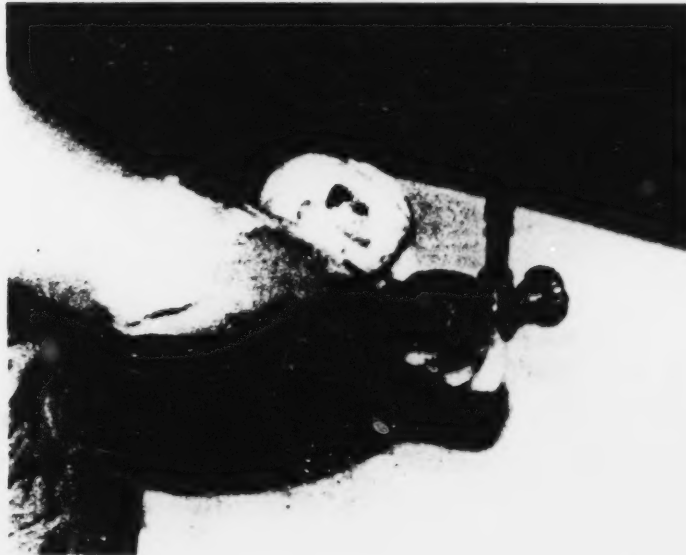
- ☐ 11. Brush all four sides of each digit 40 strokes (10 strokes for each plane of each digit).

Note: Be sure to curve the stroke across the space at the base of the fingers.

Job Sheet 1

- ☐ 12. Brush the back, front, inner, and outer side of the left hand 10 strokes each side.
- ☐ 13. Visualize the left forearm from wrist to 2" above the elbow as three sections, and brush each third 40 strokes (10 strokes each plane).

Figure 3



- ☐ 14. Rinse all visible lather from the brush and transfer it to your left hand.
- ☐ 15. Scrub the right fingers, hand, forearm, and elbow in the same manner.
- ☐ 16. Discard brush.

Job Sheet 1

- ☐ 17. Rinse both hands, arms, and elbows thoroughly.

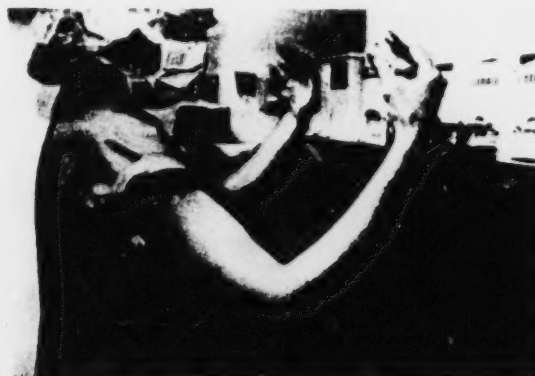
Note: Rinse from the fingertips to the elbows.

Figure 4



- ☐ 18. Turn off the water if applicable.
- ☐ 19. Pause for a moment with your arms over the sink to allow the excess water to drain off your elbows.

Figure 5



Job Sheet 1

- ☐ 20. Proceed to operating room with your hands between waist and eye level and away from your body.

Figure 6



Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 2—Dry Hands After Scrubbing

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Picked up towel correctly	_____
Blotted and rotated towel correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Small table or work surface
Opened sterile package with towel
Linen hamper or waste receptacle

B. Procedure

- ☐ 1. With one hand, pick sterile towel straight up and away from sterile field without touching the gown or dripping water onto pack.

Figure 1



Job Sheet 2

- ☐ 2. Step away from sterile field into free area, while facing sterile field.
- ☐ 3. Bend slightly at the waist so the towel will not touch the unsterile scrub suit as it unfolds lengthwise.

Figure 2



Job Sheet 2

- ☐ 4. Using one end of the towel dry one hand, forearm, and elbow with blotting, rotating motions.

Caution: Do not return to an area once it has been dried.

Figure 3



- ☐ 5. Grasp the opposite end of the towel with dried hand.
- ☐ 6. Dry other hand, forearm, and elbow with blotting, rotating motion.
- ☐ 7. Discard towel into proper waste receptacle.

Note: Remember to keep hands in front of you and in view at all times.

Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 3—Put On a Sterile Gown

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Picked up gown correctly	_____
Obtained good fit and coverage	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Small table or work surface
Opened sterile package with gown

Job Sheet 3

B. Procedure

Note: Gowning would be done after appropriately scrubbing and drying the hands. Refer to Job Sheets 1 and 2.

- ☐ 1. With one hand, grasp the inside front of the gown just below the neckline.

Figure 1



- ☐ 2. Lift gown straight up and away from sterile field being careful not to touch the edge of the wrapper.
- ☐ 3. Step away from sterile table to free area, while facing sterile field.
- ☐ 4. Lift gown to shoulder height.

Job Sheet 3

- ☐ 5. Hold gown away from body and allow it to tumble open full length, keeping the inside of gown toward the body.

Note: Do not touch the **outside** of the gown with bare hands.

Figure 2



Caution: Although vigorous shaking of the sterile gown is unacceptable, it may be necessary to gently shake out the folds especially if disposable gowns are used. Extreme care should be taken to avoid gown contamination.

Job Sheet 3

- ☐ 6. Place hands into armholes and guide each arm through the sleeves by raising and spreading the arms.

Caution: Do not allow your hands to slide outside the cuff of the gown.

Figure 3



Note: The circulator will now assist by pulling the gown over the shoulders and tying it. See Job Sheet 7.

Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 4—Put On Sterile Gloves Using the Closed Technique

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Manipulated gloves correctly	_____
Obtained good fit	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Small table or work surface
Opened sterile gown
Opened sterile gloves of the appropriate size
Sterile towel

B. Procedure

Note: Gloving would be done after appropriately scrubbing, drying, and gowning. Refer to Job Sheets 1-3 of this unit. This technique is the preferred technique for the initial gloving and may be the only technique approved in some hospitals.

- ☐ 1. Keeping your hands inside the gown sleeve, open glove folder.

Note: If gloving from a table other than the back table, make sure the edges of the glove wrapper do not extend beyond the sterile boundary.

Job Sheet 4

- ☐ 2. With right hand inside sleeve, pick up left glove by the cuff.

Figure 1



- ☐ 3. Lift glove straight up and away from the sterile field.
- ☐ 4. Position left arm with palm upward while hand is still inside sleeve.
- ☐ 5. Place glove on left forearm with fingers pointed toward the elbow, thumb downward, and glove cuff touching upper edge of gown cuff.

Figure 2



Job Sheet 4

- ☐ 6. Working through the gown sleeve, pinch the underside of the glove cuff with the left hand.

Figure 3



- ☐ 7. With the right sleeve-covered hand, grasp the upper side of the glove cuff and pull it out and over the open cuff of the sleeve.

Figure 4



Job Sheet 4

- ☐ 8. Grasp the top of the left glove and the underlying sleeve with the right hand.

Figure 5



- ☐ 9. Pull the sleeve up and the glove on.

Note: Extend your fingers and spread them apart as they enter the glove.

Figure 6



Caution: Do not adjust gloved hand at this time.

- ☐ 10. Using the gloved hand, pick up the right glove.
- ☐ 11. Position the right arm with palm upward while hand is still inside sleeve.

Job Sheet 4

- ☐ 12. Place the right glove on the right forearm with the fingers pointed toward the elbow, thumb downward, and glove cuff touching the upper edge of the gown cuff.

Figure 7



- ☐ 13. Pinch through the gown sleeve, and grasp the underside of the glove cuff.
- ☐ 14. Grasp the upper side of the glove cuff with the gloved hand and pull it up and over the open cuff of the sleeve.

Figure 8



Job Sheet 4

- ☐ 15. Grasp the top of the right glove and underlying gown sleeve with your left hand.

Figure 9



- ☐ 16. Pull the sleeve up and the glove on.

Figure 10



Job Sheet 4

- ☐ 17. Adjust the gloves to fit the fingers and hands as necessary.

Note: Remember no part of the cuff should be showing. If contamination occurs during the procedure, follow hospital policy concerning the necessity to repeat all or part of the scrubbing, gowning, and gloving procedure.

Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 5—Put On Sterile Gloves Using the Open Technique

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Manipulated gloves correctly	_____
Obtained good fit	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

- Small table or work surface
- Opened sterile gloves of the appropriate size

B. Procedure

Note: The open technique is used with or without gowning. Such procedures as catheterization and surgical skin preps require this method of gloving.

- ☐ 1. Scrub and dry hands.

Note: Refer to Job Sheets 1 and 2 of this unit.

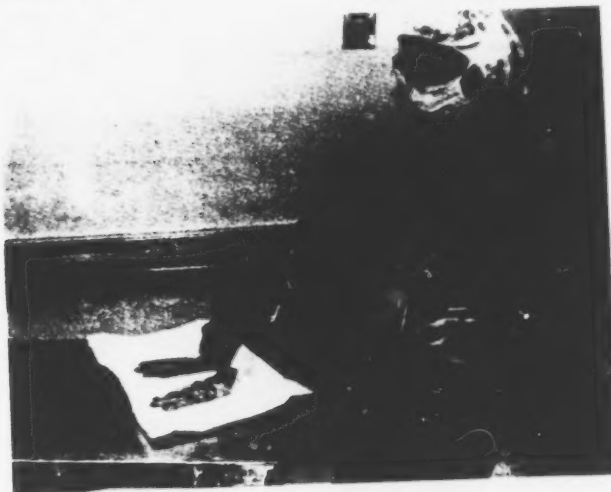
- ☐ 2. Pick up inner glove wrapper, grasp tabs on both side panels, and turn them back to expose the gloves, being careful not to let wrapper edges flip back over the gloves.

Note: The gloves are positioned palm upward with a cuff folded back 2-3 inches.

Job Sheet 5

- ☐ 3. Grasp one of the gloves by its inside cuff with the thumb and forefinger.

Figure 1



- ☐ 4. Lift the glove straight up from the folder.

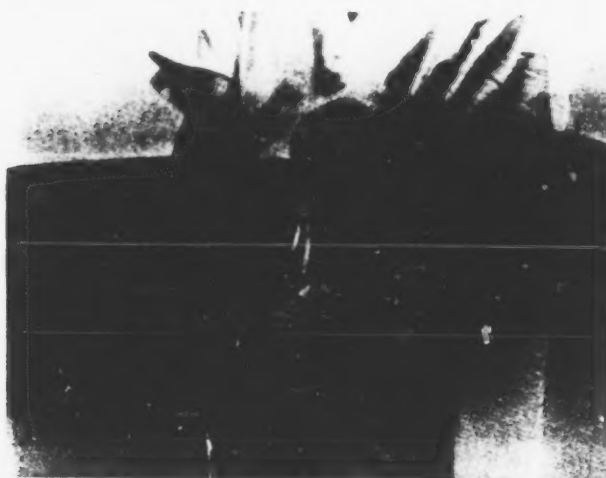
Caution: Do not allow any part of the outside of the glove to touch any unsterile area.

- ☐ 5. Step back 12-16" from table.

Job Sheet 5

- ☐ 6. Slide the opposite hand, palm upward, into the glove leaving the cuff down.

Figure 2



- ☐ 7. Insert the fingers of the gloved hand under the cuff of the other glove from the top.

Note: Slightly curve your fingers for better control of the glove.

Figure 3



Job Sheet 5

- ☐ 8. Lift the glove straight up from the folder.
- ☐ 9. Insert the ungloved hand into the glove.

Note: Hold the gloved thumb out to avoid touching bare skin.

Figure 4



Note: If you are gowned, be sure to pull the glove cuffs over the gown's sleeve cuffs.

- ☐ 10. Adjust the gloves to your fingers and hands as necessary.

Caution: Touch only glove to glove.

Note: If glove becomes torn or contaminated, follow hospital policy concerning necessity for regowning and/or regloving.

Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 6—Gown and Glove Another Person

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Presented towel, gown, and gloves correctly	_____
Obtained good fit and coverage	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Small table or work area
 Opened sterile package with gown and towel
 Opened sterile gloves of the appropriate size
 Two members of the surgical team

B. Procedure

Note: You should be appropriately scrubbed, gowned, and gloved before you gown and glove another person.

- ☐ 1. Open the hand towel, cuff your gloved hands with the towel ends, and drop it over the surgeon's extended hand.

Note: Do not allow your sterile gloved hand to come in contact with the surgeon's skin.

- ☐ 2. Grasp the sterile gown and lift it straight up from the sterile package.
- ☐ 3. Step away from the sterile field into an open area.

Job Sheet 6

- ☐ 4. Grasp the gown near the neckline with the outside of the gown facing you and watch the gown fall open.
- ☐ 5. Keeping the hands on the outside of the gown under a protective cuff of the neck and shoulder area, offer the **inside** of the gown to the surgeon. He/She slips arms into the sleeves.

Figure 1



- ☐ 6. Hold the gown until the surgeon has his/her hands and forearms in the sleeves; then release it. When releasing the gown, do not touch the surgeon's mask or any unsterile area around the neckline.

Note: The circulator will now assist in pulling the gown up and fastening it.

- ☐ 7. Pick up the right glove under everted cuff.

Note: This may be the left glove depending on the surgeon's preference. The dominant hand is usually gloved first.

- ☐ 8. Turn the palm of the glove toward the surgeon's hand.

Job Sheet 6

- ☐ 9. Place fingers under the glove cuff and spread them to create a wide opening.

Caution: Keep your thumbs under the cuff or outward to prevent contamination.

Figure 2



- ☐ 10. Exert a slight upward pressure on the cuff as the surgeon inserts his/her hand into the glove.

Figure 3



Job Sheet 6

- ☐ 11. Bring the glove cuff well over the gown cuff and gently release it.

Figure 4



- ☐ 12. Repeat the procedure for the other glove.

Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 7—Tie and Close Another Person's Sterile Gown

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Obtained secure fit	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Scrubbed person freshly gowned in wraparound gown
Circulator

B. Procedure

- ☐ 1. Reach inside shoulder and arm seams so hands are covered by gown and pull sleeves on.

Job Sheet 7

- ☐ 2. Tie inside tie(s).

Figure 1



- ☐ 3. Fasten neck fasteners.

Figure 2



Job Sheet 7

- ☐ 4. Receive the tie with disposable strip from the scrubbed person.

Note: This tie will be protected in same fashion from contamination. If not, it may be grasped within a glove folder.

- ☐ 5. Stand a safe distance from the scrubbed person and allow him/her to turn around.

- ☐ 6. Pull off disposable strip to free the tie as the scrubbed person grasps the tie at a safe distance from the end and proceeds to tie him/herself.

Figure 3



Evaluator's comments: _____

Scrubbing, Gowning, and Gloving Unit 2-A

Job Sheet 8—Remove Soiled Gown and Gloves

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Removed gown and gloves correctly	_____
Disposed of gown and gloves correctly	_____

Instruction: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Gown (soiled)
Gloves (soiled)
Wet sponge
Linen hamper or waste receptacle

B. Procedure

- ☐ 1. Wipe gloves off with a clean wet sponge, if necessary, and discard.
- ☐ 2. Untie the front (side) strings of the gown.

Job Sheet 8

- ☐ 3. After the circulator has unfastened the gown at the neckband and inner side, cross one arm across the chest and grasp one shoulder seam.

Figure 1



- ☐ 4. Pull gown downward, over and off the gloved hand, turning gown inside out and everting the cuff of the glove.
- ☐ 5. Continue to hold gown and repeat for the other side, pulling the gown off completely.

Figure 2



Job Sheet 8

- ☐ 6. Touching only the inside of the gown, fold outside to the inside and discard it in linen hamper or waste receptacle.
- ☐ 7. Grasp the outside of one glove with the gloved fingers of the other hand.

Figure 3



- ☐ 8. Pull off the glove.

Figure 4



Job Sheet 8

- ☐ 9. Discard glove into proper receptacle.
- ☐ 10. Place the fingers of the ungloved hand under the everted cuff of the glove.

Caution: Avoid touching the soiled glove with bare hands.

Figure 5



- ☐ 11. Pull off glove.

Figure 6



Job Sheet 8

- ☐ 12. Discard glove in proper receptacle.

Evaluator's comments: _____

Sterilization and Disinfection Unit 3-A

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss and demonstrate sterilization and disinfection. The student should demonstrate these competencies by completing the job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to sterilization and disinfection with their correct definitions.
2. Distinguish between sterilization, disinfection, and antisepsis.
3. Name the most frequently used methods of sterilization.
4. Select from a list factors that affect the sterilization process.
5. Match types of steam sterilizers with the correct descriptions.
6. Complete statements concerning the principles of steam sterilization.
7. Select true statements concerning the principles of ethylene oxide sterilization.
8. Complete statements concerning the principles of disinfection/sterilization with activated glutaraldehyde.
9. Select true statements concerning the principles of sterilization by ionizing radiation.
10. Match means for monitoring the sterilization process with the correct descriptions.
11. Match less utilized types of sterilization with their correct descriptions.
12. Discuss the procedure for handling contaminated instruments after the surgical procedure.
13. Distinguish between the methods for cleaning instruments.

Objective Sheet

14. Describe methods for decontaminating instruments.
15. Complete statements concerning the preparation of items for sterilization.
16. Select from a list the recommended characteristics for packaging materials.
17. Identify the methods of wrapping articles for sterilization.
18. Complete statements concerning guidelines for packaging and loading for sterilization.
19. Name factors that affect the disinfection of items.
20. Name the two major uses of disinfectants.
21. Match disinfectant agents with the correct descriptions.
22. Complete statements concerning the use of liquid chemical disinfectants.
23. Hand wash instruments. (Job Sheet 1)
24. Operate a high speed steam sterilizer (autoclave). (Job Sheet 2)
25. Package an item for sterilization. (Job Sheet 3)
26. Disinfect an endoscope. (Job Sheet 4)

Sterilization and Disinfection Unit 3-A

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make a transparency from the transparency master included with this unit. This appears in the teacher edition only and is designed to be used with the following objective:

TM 1—Methods of Sterilization (Objective 3)

5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of the Unit Evaluation Form, which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the student supplement. This could be used as a homework assignment, daily practice exercise, or quiz. Explain to students how you plan to evaluate the supplement, if at all.
12. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Suggested Activities

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Add any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Introduce the unit by showing video(s) dealing with sterilization and disinfection. Check with your local sales representatives of sterilization/disinfection supplies and equipment or check the listing in the Suggested Supplemental Resources. Videos can reinforce **communication skills**.
2. Invite a local/area sales representative for disinfectants, instruments, endoscopes, or sterilizers to demonstrate to the class new products that they may see in O.R. Demonstrations can reinforce **communication skills**, **group effectiveness skills**, and **personal and career development skills**.
3. Take students on a tour of the central sterilizing/processing department at a local medical facility. Have students note the preparation of supplies, types of sterilizers, and universal precautions they observe being used. They should then be prepared to discuss their observations back in the classroom. This localizes the unit content and reinforces **communication skills** and **group effectiveness skills**.
4. Take students on a tour of the operating room, and gather examples of disinfectants and antiseptic agents. Divide the class into groups, and have them discuss the proper use of each agent. This localizes the unit content and can reinforce **communication skills** and **group effectiveness skills**.

Suggested Activities

5. Pass out items that may be sterilized or disinfected in various ways. Have students make short presentations on the item they received. Have them include considerations for sterilization or disinfection, how it will be prepared (packaged) for sterilization, if appropriate, the method to be used to sterilize or disinfect the item, and shelf life, if appropriate. These presentations can reinforce **problem-solving skills, communication skills, and group effectiveness skills.**
6. Give students copies of autoclave strips or graphs from local medical facilities. Have them practice reading the times, temperatures, and pressures. This localizes the unit content and reinforces **foundation reading skills and problem-solving skills.**

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing.* Denver: Association of Operating Room Nurses, Inc., 1991.
2. Association of Surgical Technologists, Inc. *Core Curriculum for Surgical Technology*, 3rd ed., 1990.
3. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, 1992.
4. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.

Suggested Supplemental Resources

1. *Meeting the Challenge: Part I—Biological Monitoring*, 20-minute video or slide/tape
2. *Meeting the Challenge: Part II—Chemical Indicators and Record Keeping*, 15-minute video or slide/tape
3. *Ethylene Oxide: Principles and Precautions*, 18-minute videotape
4. *Ethylene Oxide: Standards of Use*, 18-minute videotape
5. *There Is No Substitute for Quality*, 12-minute videotape discussing when to use EO versus steam autoclaves.
6. *Is It Sterile?*, 11-minute videotape discussing flash sterilization.

Suggested Activities

7. *Basic Sterilization Process Monitoring—Part I and II*, two videotapes (11 minutes and 14 minutes) covering steam and ethylene oxide sterilization and monitoring systems.

1-7 are available from your local 3M sales representative (call 1-800-228-3957 for more information) or from the following lending library:

3M Health Care
c/o Computer Chrome, Inc.
2610 University Avenue
St. Paul, MN 55114
800-328-4827, ext. 1205

8. *Inhospital Sterilization*, 20-minute A.O.R.N. film produced in 1981 covering steam, ethylene oxide, and dry heat sterilization methods. Available from:

Cine-Med Distribution Center
Davis + Geck Video Library
P.O. Box 745
Woodbury, CT 06898
800-633-0004

9. *Methods of Sterilizing and Disinfecting Surgical and Medical Equipment*, 15-minute videotape and study guide. 1989. This Johnson & Johnson Medical Inc. program is available from:

AD/COM, INC.
2003 Lamar Blvd., East
Arlington, TX 76006
800-486-8247

10. *Decontamination*, 16-minute videotape
11. *Preparation of Instruments and Basin Sets for Sterilization*, 20-minute videotape
12. *Textile Pack Preparation and Sterility Maintenance Concepts*, 20-minute videotape
13. *The Steam Sterilization Process*, 20-minute videotape
14. *The Principles of Washing*, 25-minute videotape
15. *Biological Indicators: Monitors for Sterility Assurance*, 16-minute videotape
16. *Flash Sterilization*, 20-minute videotape
17. *AMSCO EO Safe Use Kit*, includes videotape, current OSHA Standards, safety booklet, wall poster, EO monitoring products, and safety checklist.

Suggested Activities

18. *Tips for Improving Your Steam Sterilization Techniques*, reference chart.

10-18 are available from:

AMSCO/American Sterilizer Company
2424 West 23rd Street
Erie, PA 16506
814-870-8291

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Sterilization and Disinfection
Unit 3-A

Answers to Student Supplement 1

1. d
2. b
3. a
4. a
5. c
6. d
7. d
8. c
9. a
10. b

Sterilization and Disinfection
Unit 3-A

Answers to Written Test

- | | | | | | | |
|----|----|----|----|----|----|----|
| 1. | a. | 12 | g. | 18 | m. | 19 |
| | b. | 21 | h. | 10 | n. | 6 |
| | c. | 14 | i. | 1 | o. | 7 |
| | d. | 11 | j. | 23 | p. | 20 |
| | e. | 16 | k. | 5 | q. | 14 |
| | f. | 22 | l. | 15 | r. | 17 |
2. a. D
b. A
c. S
3. a. Steam under pressure
b. Ethylene oxide gas
c. Activated glutaraldehyde
d. Ionizing radiation
4. a, b, c, e, f
5. a. 3
b. 1
c. 2
6. a. Coagulation
b. Least
c. Steam
d. Increases
e. Bottom
f. 3
g. 10
h. 121°C
7. a, e, g
8. a. Is
b. Heat-
c. Noncorrosive
d. Is not
e. Dry
f. Hours
g. Sterile distilled water
h. Can

203

Answers to Written Test

9. a, b
10. a. 3 d. 1
b. 1 e. 3
c. 2 f. 1 and 2
11. a. 5
b. 3
c. 4
d. 2
12. Discussion should include:
- a. All instruments are opened and disassembled as necessary so that all surfaces can be contacted by the disinfectant/sterilant.
 - b. All instruments are cleaned.
 - c. All instruments are decontaminated.
 - d. Instruments are reassembled, wrapped, and resterilized according to hospital policy.
13. c
14. Either one of the following:
- a. Instruments are exposed to a complete wash-sterilize cycle in a washer-sterilizer.
 - b. Instruments are rinsed in water and autoclaved for 3 minutes at 132°C (270°F) or 15-20 minutes at 121°C (250°F).
15. a. Opened
b. Disassembled
c. Should be
d. Towels
e. Mesh
f. Bottom
g. Bottom
h. Each part wrapped separately
i. Have a residual amount of distilled water left in them
j. Loosely
k. Should not
l. Gas
m. Indicator tape
n. Must not be
16. a, c, d, f, h, i

Answers to Written Test

- 17.
 - a. Envelope
 - b. Peel pack or pouch wrapper
- 18.
 - a. 2
 - b. Polypropylene
 - c. Is not
 - d. Expiration
 - e. On edge
 - f. Off
 - g. Lowest
 - h. 20
 - i. 12
 - j. Lighter
 - k. 16
- 19. Any two of the following:
 - a. Type of object to be disinfected
 - b. Type and number of microorganisms present
 - c. Type of chemical used
- 20.
 - a. Disinfection of surfaces and large equipment (housekeeping)
 - b. Disinfection of surgical instruments
- 21.
 - a. 2, 3, 4, 6
 - b. 1, 2, 5, 6
 - c. 4
 - d. 6
 - e. 2
 - f. 3
 - g. 1
- 22.
 - a. Must
 - b. Must
 - c. Dry
 - d. Must

Sterilization and Disinfection
Unit 3-A

Written Test

Name _____

Score _____

1. Match the terms on the right with the correct definitions.

- | | | |
|----------|--|------------------------|
| _____ a. | Highly explosive and flammable gas used as a chemical sterilant | 1. Aeration |
| _____ b. | Substance that kills all forms of living matter including spore-bearing ones | 2. Ambient |
| _____ c. | Liquid chemical sterilant and disinfectant | 3. Animate |
| _____ d. | Agent that kills all microorganisms except spore-bearing ones | 4. Antiseptic |
| _____ e. | Method of sterilization with cobalt 60 used by manufacturers | 5. Autoclave |
| _____ f. | Equipment or chamber used to attain physical or chemical sterilization | 6. Bacteriocidal |
| _____ g. | Steam that contains the maximum amount of water vapor | 7. Bacteriostatic |
| _____ h. | To change the vital functions, forces, and activities of an organ | 8. Bioburden |
| _____ i. | Act of airing | 9. Delaminate |
| _____ j. | Process of rendering all articles free of pathogens at the end of an operative procedure | 10. Denaturation |
| _____ k. | Steam sterilizer | 11. Disinfectant |
| _____ l. | Nonliving | 12. Ethylene oxide |
| _____ m. | Length of time a wrapped package remains sterile while in storage | 13. Germicide |
| _____ n. | Agent that kills bacteria | 14. Glutaraldehyde |
| | | 15. Inanimate |
| | | 16. Ionizing radiation |
| | | 17. Lumen |
| | | 18. Saturated steam |
| | | 19. Shelf-life |

Written Test

- | | | |
|----------|--|------------------------------|
| _____ o. | Agent that retards or prevents bacterial growth | 20. Sporicidal |
| _____ p. | Agent capable of killing spore-forming organisms in the free spore state | 21. Sterilant |
| _____ q. | Agent that inhibits the growth of microorganisms on animate surfaces | 22. Sterilizer |
| _____ r. | Space within a tube | 23. Terminal decontamination |
| | | 24. Ultrasonic cleaner |
2. Distinguish between sterilization, disinfection, and antisepsis by placing the following letters in the appropriate blanks: "S" for sterilization, "D" for disinfection, and "A" for antisepsis.
- _____ a. The process of destroying all microorganisms except spore-bearing ones; used on inanimate objects
- _____ b. The process of inhibiting the growth of microorganisms; used on animate objects
- _____ c. The process of destroying all microorganisms including spore-bearing ones; used on inanimate objects
3. Name the four most frequently used methods of sterilization.
- a. _____
- b. _____
- c. _____
- d. _____
4. Select from the following list those factors that affect the sterilization process by placing an "X" in the appropriate blanks.
- _____ a. Temperature
- _____ b. Time
- _____ c. Concentration of the sterilizing agent
- _____ d. Location of sterilization
- _____ e. Humidity
- _____ f. Penetrating ability of the sterilizing agent

Written Test

5. Match types of steam sterilizers on the right with the correct descriptions.

- | | | |
|----------|--|--|
| _____ a. | Pulls air out of the chamber by a vacuum and steam is injected to replace it; has a longer operation cycle and items sterilized with this generally have a longer shelf life; is commonly used in the central service department | 1. Washer-sterilizer |
| _____ b. | Uses agitated water with detergent to loosen soil; then steam displaces the water and items are sterilized at 132°C (270°) for 3 minutes | 2. High speed (flash) gravity sterilizer |
| _____ c. | Is a smaller version sterilizer; because of its size it is capable of reaching higher temperatures with reduced exposure time and is better adapted to use in the OR | 3. High vacuum pressure/gravity sterilizer |

6. Complete the following statements concerning the principles of steam sterilization by circling the correct answers.

- Microorganisms are destroyed through a process of denaturation and (disintegration, coagulation) of the enzyme-protein system within the cell.
- Steam sterilization is preferred to other methods because it is the (least, most) expensive, most efficient, and safest method of processing heat- and moisture-stable items.
- Water is heated and converted to (oxygen, steam).
- Steam is submitted to increasing pressure which (increases, decreases) the temperature.
- Steam drives the heavier air out an escape valve at the (top, bottom) of the chamber.

Written Test

Items are sterilized according to the following temperature-time-pressure chart.

Items	Temperature	Time	Pressure
Unwrapped metal instruments	132°C (270°F)	f. (3, 5) min. minimum	27 PSI minimum
Unwrapped metal instruments combined with porous materials	132°C (270°F)	g. (5, 10) min. minimum	27 PSI minimum
Wrapped instruments, packs, bulk loads with porous and nonporous items	h. (121°C, 132°C)	30 min. minimum	15 PSI minimum

7. Select true statements concerning the principles of ethylene oxide (E.O.) sterilization by placing an "X" next to the true statements.
- _____ a. EO is a method of sterilization used for equipment which cannot withstand the extreme pressure and temperature of steam sterilization.
 - _____ b. EO kills microorganisms by denaturation.
 - _____ c. EO is nonflammable.
 - _____ d. EO is nontoxic.
 - _____ e. Items must be "towel dry" so no visible water droplets remain prior to sterilization.
 - _____ f. Sterilization is only dependent upon the temperature and the exposure time used.
 - _____ g. The effective temperature range for sterilization is 21°C–60°C (70°–140°F).
 - _____ h. Mechanical aeration is accomplished in seven days at room temperatures of 18°–22°C (65°–72°F).
 - _____ i. Ambient aeration is accomplished in eight hours at 60°C (140°F) or 12 hours at 50°C (122°F).

Written Test

8. Complete the following statements concerning the principles of disinfection/sterilization with activated glutaraldehyde by circling the correct words.
- a. Activated glutaraldehyde (is, is not) used for lensed instruments.
 - b. Activated glutaraldehyde is used for items that are (chemical-, heat-) sensitive.
 - c. It is (corrosive, noncorrosive).
 - d. It (is, is not) absorbed by rubber and plastic.
 - e. Items should be clean and (wet, dry) before immersion.
 - f. Activated glutaraldehyde requires total immersion of instruments for 10 (minutes, hours) for sterilization.
 - g. Following immersion all instruments must be rinsed thoroughly with (sterile saline, sterile distilled water) and dried with a sterile towel.
 - h. Activated glutaraldehyde (can, cannot) be reused.
9. Select true statements concerning the principles of sterilization by ionizing radiation by placing an "X" next to the true statements.
- _____ a. Sterilization by ionizing radiation is accomplished in the following way:
 - (1) When ions collide with adjacent atoms, they produce a high ionic energy.
 - (2) Ionic energy converts to thermal and chemical energy which destroy microorganisms.
 - _____ b. The principal sources of ionizing radiation are beta particles and gamma rays.
 - _____ c. Uranium 260 is the most commonly used source for irradiation sterilization.
 - _____ d. Sterilization by ionizing radiation is commonly used in the central service department and occasionally in the OR.

Written Test

10. Match means for monitoring the sterilization process on the right with the correct descriptions.

- | | | |
|----------|--|------------------------|
| _____ a. | Are used to indicate sterility of contents | 1. Chemical monitors |
| _____ b. | Indicate that the contents have been exposed to the physical conditions within a sterilizing chamber | 2. Mechanical monitors |
| _____ c. | Monitor the functioning of the sterilizing equipment using devices such as thermometers, vacuum gauges, and pressure gauges | 3. Biological monitors |
| _____ d. | Include heat-sensitive tapes, indicating labels, or indicating print on packaging materials used on the inside or outside of packages to indicate that the package has gone through a sterilizer cycle | |
| _____ e. | Are live, nonpathogenic, spore-forming bacteria available on specially prepared strips or ampules which are placed inside packages to be put through the sterilizer cycle | |
| _____ f. | Do not indicate sterility of contents | |

11. Match the less utilized types of sterilization on the right with their correct descriptions.

- | | | |
|----------|--|-----------------------------------|
| _____ a. | Used primarily as an alternative for ethylene oxide for heat- and moisture-sensitive items | 1. Formaldehyde gas |
| _____ b. | Used primarily for endoscopes and fiberoptics | 2. Hot air or dry heat |
| _____ c. | Used primarily for single or small numbers of instruments | 3. Hydrogen peroxide plasma/vapor |
| _____ d. | Used primarily for oils, petroleum products, and bulk powders | 4. Microwaves |
| | | 5. Ozone gas |

Written Test

12. Discuss in writing below the procedure for handling contaminated instruments after the surgical procedure.

13. Distinguish between the methods for cleaning instruments by placing an "X" next to the description of the mechanical method of cleaning.

- _____ a. Disassembled, opened instruments are immersed in non-corrosive, free rinsing detergent, scrubbed with a brush to remove all soil, rinsed thoroughly, and dried
- _____ b. Instruments are cleaned in five minutes with a low-sudsing, free rinsing detergent in the ultrasonic cleaner, and are rinsed thoroughly.
- _____ c. Disassembled, opened instruments are placed in a washer-sterilizer tray and are exposed to the wash cycle using a low-sudsing, free rinsing detergent.

14. List one method for decontaminating instruments.

15. Complete the following statements concerning the preparation of items for sterilization by circling the correct words.

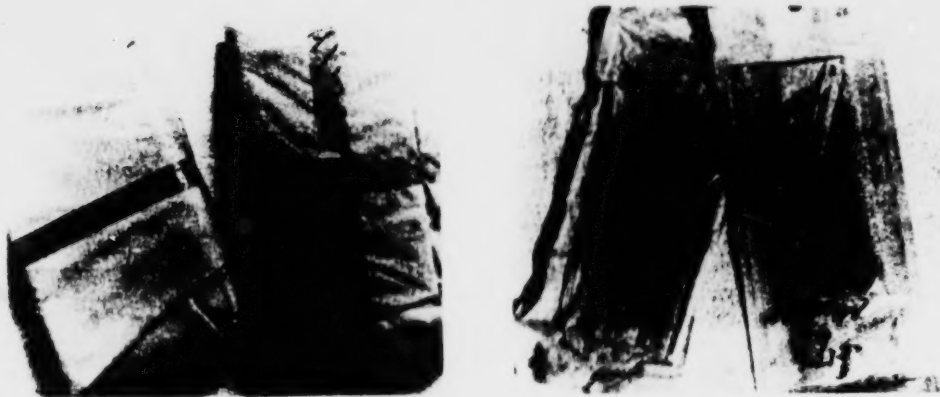
- a. All instruments with box locks should be (opened, closed).
- b. All detachable parts should be (assembled, disassembled).
- c. Instrument racks or pins (should be, should not be) used for instruments.
- d. Solid utensils and basins should be separated by (polyethylene sheets, towels).
- e. Instruments should be placed in a (mesh, solid) tray.

Written Test

- f. When trays are to be wrapped, a towel should be placed on the (top, bottom) of the tray.
 - g. Heavy instruments should be placed on the (top, bottom).
 - h. Glass syringes should be disassembled and (wrapped together, each part wrapped separately).
 - i. When being steam sterilized, objects with a lumen should (have a residual amount of distilled water left in them, be totally dry).
 - j. Flexible tubing should be coiled (loosely, tightly).
 - k. Rubber bands (should, should not) be used to hold items together.
 - l. Items should be clearly labeled for (gas, steam) sterilization.
 - m. Packages are sealed with (paper clips, indicator tape) or a heat sealer.
 - n. Single use items (may be, must not be) resterilized.
16. Select from the following list the recommended characteristics for packaging materials by placing an "X" next to the appropriate characteristics.
- _____ a. Adequate air removal and steam penetration for steam sterilization
 - _____ b. Containment of gas and moisture for gas sterilization
 - _____ c. Effective barrier to microorganisms
 - _____ d. Durable
 - _____ e. Rigid
 - _____ f. Free of holes
 - _____ g. Resealable
 - _____ h. Easy aseptic presentation
 - _____ i. Free of toxic ingredients and nonfast dyes

Written Test

17. Identify the following methods of wrapping articles for sterilization.



a. _____ b. _____

18. Complete the following statements concerning guidelines for packaging and loading for sterilization by circling the correct words.
- a. Items should be sequentially wrapped in (2, 4, 8) **double** thicknesses.
 - b. (Polypropylene, Polyethylene) film of 1-3 mm thickness is the only plastic acceptable for steam sterilization.
 - c. Nylon (is, is not) acceptable packaging for gas sterilization.
 - d. Every in-hospital sterilized package should be imprinted or labeled with a lot control number that identifies the date of sterilization, sterilizer used, the cycle or load number, and the date of (expiration, expected use).
 - e. All packages should be placed in the sterilizer (bottom down, on edge) and in loose contact to allow free circulation and penetration of steam, enhance air elimination, and prevent entrapment of air and steam or gas.
 - f. All jars, tubes, and canisters should be arranged on their sides with covers (on, off) to provide for escape of air and free flow of steam and heat.
 - g. In combined loads, nonporous items should be placed on the (lowest, highest) shelves of the rack.
 - h. Pack size should be no larger than 12 × 12 × (12, 20) inches.

Written Test

- i. Pack size should be no heavier than (5, 12) pounds.
 - j. Materials in a pack should be layered and (lighter, heavier) materials should be placed near the center.
 - k. Instrument sets must not exceed (12, 16) pounds.
19. Name two of the three factors that affect the disinfection of items.
- a. _____
 - b. _____
20. Name the two major uses of disinfectants.
- a. _____
 - b. _____
21. Match disinfectant agents on the right with the correct descriptions.

Note: Some descriptions may have more than one correct answer, but all disinfectant agents listed on the right will be used *at least* once.

- | | |
|--|--------------------------------|
| _____ a. May be used as a housekeeping disinfectant | 1. 2% glutaraldehyde |
| _____ b. May be used on semi-critical instruments (those without lenses) | 2. Alcohol |
| _____ c. Stains fabrics and tissues | 3. Chlorine compounds (bleach) |
| _____ d. Remains active after prolonged drying | 4. Iodine |
| _____ e. May be used on some instruments, but cannot be used on lensed instruments with cement mountings | 5. Iodophor |
| _____ f. Cannot be used on any instruments | 6. Phenolic compounds |
| _____ g. Also used as a sterilant when used for correct length of time | |

Written Test

22. Complete the following statements concerning the use of liquid chemical disinfectants by circling the correct words.
- a. Items (need not, must) be clean and free of gross soil.
 - b. Liquids (must, must not) be diluted.
 - c. Materials to be disinfected should be (wet, dry).
 - d. Disinfectants (must, must not) be rinsed from items before their use.

**Sterilization and Disinfection
Unit 3-A**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Hand Wash Instruments Rating _____

Comments: _____

Job Sheet 2—Operate a High Speed Steam Sterilizer (Autoclave) Rating _____

Comments: _____

Job Sheet 3—Package an Item for Sterilization Rating _____

Comments: _____

Job Sheet 4—Disinfect an Endoscope Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

217

Methods of Sterilization

Activated Glutaraldehyde

Steam Under Pressure

Ethylene Oxide Gas

Ionizing Radiation

?



213

Sterilization and Disinfection Unit 3-A

Information Sheet

1. Terms and definitions

- a. **Aeration** — Act of airing
- b. **Ambient** — Surrounding atmosphere; the environment
- c. **Animate** — Living
- d. **Antiseptic** — Agent that inhibits the growth of microorganisms on animate surfaces
- e. **Autoclave** — Steam sterilizer
- f. **Bacteriocidal** — Agent that kills bacteria
- g. **Bacteriostatic** — Agent that retards or prevents bacterial growth
- h. **Bloburden** — Relative number of actual or suspected microorganisms found in a specific area or on a specific item
- i. **Delaminate** — To separate into layers
- j. **Denaturation** — To change the vital functions, forces, and activities of an organ
- k. **Disinfectant** — Agent that kills all microorganisms except spore-bearing ones
- l. **Ethylene oxide** — Highly explosive and flammable gas used as a chemical sterilant
- m. **Germicide** — Chemical agent that kills germs
- n. **Glutaraldehyde** — Liquid chemical sterilant and disinfectant
- o. **Inanimate** — Nonliving
- p. **Ionizing radiation** — Method of sterilization with cobalt 60 used by manufacturers
- q. **Lumen** — Space within a tube
- r. **Saturated steam** — Steam that contains the maximum amount of water vapor

Information Sheet

- s. **Shelf-life** — Length of time a wrapped package remains sterile while in storage

Note: This varies depending on several factors such as the type of wrapping material used, the number of layers of wrapping material used, and various environmental conditions of the storage area.

- t. **Sporicidal** — Agent capable of killing spore-forming organisms in the free spore state

- u. **Sterilant** — Substance that kills all forms of living matter including spore-bearing ones

- v. **Sterilizer** — Equipment or chamber used to attain physical or chemical sterilization

- w. **Terminal decontamination** — Process of rendering all articles free of pathogens at the end of an operative procedure

- x. **Ultrasonic cleaner** — Machine that uses ultrasonic energy and high frequency sound waves to clean instruments by a process known as cavitation in which tiny bubbles (generated by the sound waves) dislodge, dissolve, and disperse soil from the instruments

2. Differences between sterilization, disinfection, and antisepsis

- a. **Sterilization** — The process of destroying all microorganisms including spore-bearing ones; used on inanimate objects

- b. **Disinfection** — The process of destroying all microorganisms except spore-bearing ones; used on inanimate objects

- c. **Antisepsis (asepsis)** — The process of inhibiting the growth of microorganisms; used on animate objects

Note: Because antiseptics are designed to be used on animate surfaces, they must be weaker than disinfectants which are designed to be used on inanimate surfaces.

3. Most frequently used methods of sterilization

- a. Steam under pressure
- b. Ethylene oxide gas
- c. Activated glutaraldehyde
- d. Ionizing radiation

Note: Check manufacturer's recommendations for preferred methods of sterilization.

Information Sheet

4. Factors that affect the sterilization process

- a. Temperature
- b. Time
- c. Humidity
- d. Concentration of the sterilizing agent
- e. Penetrating ability of the sterilizing agent

5. Types of steam sterilizers (autoclaves)

- a. **High speed (flash) gravity sterilizer** — Is a smaller version sterilizer; because of its size it is capable of reaching higher temperatures with reduced exposure time and is better adapted to use in the OR

Figure 1



Information Sheet

- b. **High vacuum pressure/gravity sterilizer** — Pulls air out of the chamber by a vacuum and steam is injected to replace it; has a longer operation cycle and items sterilized with this generally have a longer shelf life; is commonly used in the central service department

Figure 2



- c. **Washer-sterilizer** — Uses agitated water with detergent to loosen soil; then steam displaces the water and items are sterilized at 132°C (270°) for 3 minutes

Note: These items are then commonly wrapped and resterilized in the large high vacuum sterilizer for longer shelf life.

Figure 3



Information Sheet

6. Principles of steam sterilization

- a. Microorganisms are destroyed through a process of denaturation and coagulation of the enzyme-protein system within the cell.
- b. Steam sterilization is preferred to other methods because it is the least expensive, most efficient, and safest method of processing heat- and moisture-stable items.
- c. Water is heated and converted to steam.
- d. Steam is submitted to increasing pressure which increases the temperature.
- e. Steam drives the heavier air out an escape valve at the bottom of the chamber.
- f. Saturated steam permeates the material within the chamber and transfers its heat to the material.
- g. Items are sterilized according to the following temperature-time-pressure chart:

Items	Temperature	Time	Pressure
Unwrapped metal instruments	132°C (270°F)	3 min. minimum	27 PSI minimum
Unwrapped metal instruments combined with porous materials (ex: rubber tubing)	132°C (270°F)	10 min. minimum	27 PSI minimum
Wrapped instruments, packs, bulk loads with porous and nonporous items	121°C (250°F)	30 min. minimum	15 PSI minimum

- h. Wrapped items are allowed to dry following sterilization.
- i. Items are to remain untouched on the sterilizer cart for 30-60 minutes following removal from steam sterilizer.

Note: Touching articles while damp would result in strike-through contamination.

Information Sheet

7. Principles of ethylene oxide (E.O.) sterilization

- a. Ethylene oxide (EO) is a method of sterilization used for equipment which cannot withstand the extreme pressure and temperature of steam sterilization.

Examples: Delicate instruments, electric or air powered instruments, some endoscopes, plastic and porous materials

- b. EO kills microorganisms by chemical interference and by inactivating the cell's reproductive process.
- c. EO is highly flammable but is rendered nonflammable when mixed with carbon dioxide or fluorinated hydrocarbon (Freon).
- d. EO is highly toxic to body tissues and is a known carcinogen.
- e. Items must be "towel dry" so no visible water droplets remain prior to sterilization.
- f. Biological indicators must be used with each E.O. cycle to verify its adequacy.
- g. Sterilization is dependent upon:

- (1) Time: 1 $\frac{3}{4}$ –12 hours
- (2) Temperature: 21°–60°C (70°–140°F)
- (3) Humidity: 40–80%

Note: Highly dried bacterial spores are resistant to ethylene oxide gas; therefore, they must be hydrated for the gas to be effective.

- (4) Gas concentration: 450–1000 mg per liter of chamber space

Note: All these factors are dependent upon the manufacturer's specifications. The gas concentration is affected by the temperature and the humidity within the chamber which also affects the exposure time.

- h. All porous items must be aerated after processing to eliminate the hazard of toxic residues.

- (1) Mechanical aeration (preferred method) — 8 hours at 60°C (140°F) or 12 hours at 50°C (122°F)
- (2) Ambient aeration — Up to 7 days at room temperatures of 18°–22°C (65°–72°F) depending on type of item and wrapper

Note: E.O. sterilizers and aerators must be exhaust ventilated to outside areas separate from the hospital ventilation system and away from pedestrian traffic.

Information Sheet

8. Principles of disinfection/sterilization with activated glutaraldehyde

- a. Activated glutaraldehyde is used for lensed instruments and other items that are heat-sensitive.

Note: Its low surface tension permits easy penetration and rinsing.

- b. It is relatively noncorrosive.
- c. It is **not** absorbed by rubber and plastic.
- d. Items should be **clean** and **dry** before immersion to prevent diluting the liquid concentration.
- e. Activated glutaraldehyde requires total immersion of instruments for 10 hours for sterilization; 10 minutes for disinfection.

Note: Because of the lengthy time required for sterilization, activated glutaraldehyde is more commonly used for disinfection.

- f. All surfaces must come in contact with the liquid. Lumens of instruments or tubing must be completely filled.
- g. Following immersion, all instruments must be rinsed thoroughly two or more times with sterile distilled water and dried with a sterile towel.
- h. Activated glutaraldehyde remains chemically active and stable for a specific time period so it can be reused.

Note: This must be calculated according to the manufacturer's recommendations and clearly marked on the sterilant's container.

9. Principles of sterilization by ionizing radiation

Note: Products sterilized by radiation are not radioactive.

- a. Sterilization by ionizing radiation (irradiation) is accomplished in the following way:
 - (1) When ions (atoms with positive or negative charges after losing or gaining electrons) collide with adjacent atoms, they produce a high ionic energy.
 - (2) Ionic energy converts to thermal and chemical energy which destroy microorganisms.

Information Sheet

- b. The principal sources of ionizing radiation are beta particles (free electrons) and gamma rays (electromagnetic waves).
- c. Cobalt 60, a radioactive isotope, is the most commonly used source for irradiation sterilization because it is capable of disintegrating to produce gamma rays.
- d. Sterilization by ionizing radiation is primarily limited to commercial use.

10. Means for monitoring the sterilization process

a. Mechanical monitors

- (1) Are devices such as thermometers, vacuum gauges, and pressure gauges that mechanically monitor the functioning of the sterilizing equipment
- (2) Do **not** indicate sterility of contents

b. Chemical (process) monitors

- (1) Include heat-sensitive tapes, indicating labels or strips, or indicating print on packaging materials used on the inside or outside of packages to indicate that the package has gone through a sterilizer cycle (usually indicated by changing color)
- (2) Do **not** indicate sterility of contents; only indicate that the contents have been exposed to the physical conditions within a sterilizing chamber
- (3) The Bowie-Dick type test is a special test performed on prevacuum (high vacuum) sterilizers to monitor the efficiency of the vacuum system. It is not a sterilization test, but rather is a way to check that all of the air is being pulled out of the chamber during the prevacuum stage.

c. Biological monitors

- (1) Are live, nonpathogenic, spore-forming bacteria available on specially prepared strips or ampules which are placed inside packages to be put through the sterilizer cycle
- (2) Are recovered and cultured at the end of the sterilization process (prior to aeration period)
- (3) **Are** used to indicate sterility of contents
 - (a) *Bacillus stearothermophilus* spores are used to test the steam under pressure sterilization process which must be tested routinely, at least weekly.
 - (b) *Bacillus subtilis* is used to test the ethylene oxide gas and dry heat sterilization processes. E.O. gas sterilization must be tested each cycle.

Information Sheet

11. Other less utilized types of sterilization

- a. **Hot air or dry heat** — Used primarily to sterilize anhydrous oils, petroleum products, and bulk powders
- b. **Microwaves** — Used primarily for single or small numbers of instruments
- c. **Formaldehyde gas** — Used primarily for items that cannot be steam sterilized and if glutaraldehyde and ethylene oxide are not available
- d. **Hydrogen peroxide plasma/vapor** — Used primarily for endoscopes and fiber optics; is simple and easy to use; by-products are oxygen and water
- e. **Ozone gas** — Used primarily as an alternative for ethylene oxide for heat- and moisture-sensitive items

12. Procedure for handling contaminated instruments after the surgical procedure

Note: Universal Precautions must be followed when handling contaminated instruments.

- a. All instruments are opened and disassembled as necessary so that all surfaces can be contacted by the disinfectant/sterilant.
- b. All instruments are cleaned.
- c. All instruments are decontaminated.
- d. Instruments are reassembled, wrapped, and resterilized according to hospital policy.

13. Methods for cleaning instruments

- a. **Manual method (by hand)**
 - (1) Universal Precautions should be followed.
 - (2) Soiled grooved instruments should be soaked in detergent-germicide to prevent excessive drying of soil.
 - (3) Assembled instruments must be disassembled with all catches or joints on instruments released and hinged instruments opened.
 - (4) Any item with a lumen should be internally brushed.

Information Sheet

- (5) To clean instruments, completely immerse in deep basin with noncorrosive, free-rinsing detergent in water.
- (6) All instruments with serrations and box locks must be scrubbed with a brush to remove all soil.
- (7) Instruments must be rinsed thoroughly.
- (8) After cleaning, instruments must be completely dry for storage to prevent rusting and corrosion.

Note: Heavy instruments are not placed on top of delicate instruments.

b. **Mechanical method (with washer-sterilizer)**

- (1) Soiled instruments are placed in a washer-sterilizer tray arranged with box locks open, cutting edges protected, and assembled instruments disassembled. They are then exposed to the wash cycle.
- (2) Low-sudsing, free-rinsing detergent with pH value near 7.0 is recommended.

c. **Ultrasonic method (with ultrasonic cleaner)**

- (1) Surgical instruments can be ultrasonically cleaned in five minutes with approximately 90% soil removal.
- (2) The ultrasonic cleaner does **not** sterilize.
- (3) Low-sudsing, free-rinsing detergent with a pH value no higher than 8 is recommended.
- (4) Thorough rinsing is essential. Ultrasonic action will loosen dirt and soil, but they remain suspended in the cleaning medium.
- (5) Various dissimilar metals must be kept separate while using the ultrasonic cleaner to avoid electrolysis with resultant etching.

14. **Methods for decontaminating instruments**

- a. Instruments are exposed to a complete wash-sterilize cycle in a washer-sterilizer.
- b. Instruments are rinsed in water and autoclaved for 3 minutes at 132°C (270°F) or 15-20 minutes at 121°C (250°F).

Information Sheet

15. Preparation of items for sterilization

- a. All instruments with box locks should be opened to ensure that all surfaces will be contacted by the sterilant.
- b. All detachable parts should be disassembled.
- c. Instrument racks or pins should be used when instruments are placed in sets.
- d. Heavy instruments should be placed on the bottom.
- e. Instruments should be placed in a mesh (perforated) tray to allow the sterilant to flow through and contact all surfaces.
- f. When trays are to be wrapped, a towel should be placed on the bottom of the tray to help absorb moisture.
- g. Solid utensils and basins should be placed on their side and separated by towels or other porous material.
- h. Glass syringes should be disassembled and each part wrapped separately to prevent breakage.
- i. Any object with a lumen:

- (1) Should have a residual amount of distilled water left in it for steam sterilization.

Note: This is to prevent air from being trapped inside and thus preventing sterilization.

- (2) Should be towel dry for gas sterilization.

- j. All flexible tubing should be coiled loosely, without kinks.
- k. Rubber bands should not be used to hold items together.
- l. Items should be clearly labeled for gas sterilization.

Note: This will prevent inadvertently using steam that could damage or ruin an item.

- m. Packages are sealed with heat sealer or heat- or gas-sensitive indicator tape.
- n. Items intended for single use only must **not** be resterilized.

Information Sheet

16. Recommended characteristics for packaging materials

- a. Suitable for the sterilization method used.
 - (1) Adequate air removal and steam penetration for steam sterilization
 - (2) Adequate penetration and release of gas and moisture for gas sterilization, and allow release of gases after sterilization
- b. Effective barrier to microorganisms
- c. Durable to prevent tearing and puncture
- d. Proven seal integrity
 - (1) Must not delaminate upon opening
 - (2) Must not reseal if opened
- e. Free of holes
- f. Easy aseptic presentation
- g. Flexible and memory-free
- h. Free of toxic ingredients and nonfast dyes
- i. Economical
- j. Freshly laundered if non-disposable material

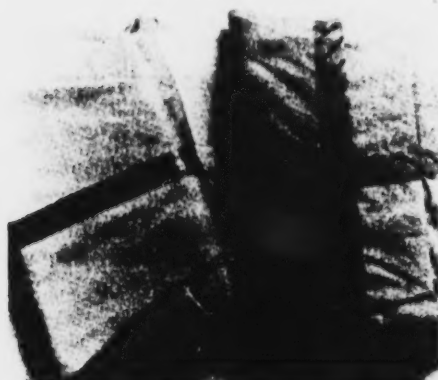
Note: Laundering ensures sufficient moisture content of fibers which prevents superheating and absorption of sterilant. It also reduces deterioration rate.

Information Sheet

17. Methods of wrapping articles for sterilization

- a. Envelope—Uses two wrappers; is the most common method for wrapping items for sterilization

Figure 4



- b. Peel pack or pouch wrapper—Uses a double-faced bag which opens on one end

Figure 5



Information Sheet**18. Guidelines for packaging and loading for sterilization****a. Packaging**

- (1) Items should be sequentially wrapped in 2 double thicknesses (4 total)
- (2) Manufacturers of packaging materials must show data that indicates their products are equivalent to the muslin time-temperature profile when steam sterilization is used. These wrappers are intended for one time use only.
- (3) Polypropylene film of 1-3 mm thickness is the only plastic acceptable for steam sterilization.
- (4) Nylon is not acceptable packaging for gas sterilization.
- (5) Every in-hospital sterilized package should be imprinted or labeled with a lot control number that identifies the date of sterilization, sterilizer used, the cycle or load number, and the date of expiration.
- (6) Pack size should be:
 - (a) No larger than 12 × 12 × 20 inches
 - (b) No heavier than 12 pounds.
 - (c) No greater than 7.2 lbs. per cubic foot in density
- (7) Materials in a pack should be layered and lighter materials should be placed near the center.
- (8) Instrument sets must not exceed 16 pounds.

b. Loading

- (1) All packages should be placed in the sterilizer on edge (except instruments in perforated pans) and in loose contact to allow free circulation and penetration of steam, enhance air elimination, and prevent entrapment of air and steam or gas.
- (2) All jars, tubes, and canisters should be arranged on their sides with covers off to provide for escape of air and free flow of steam and heat.
- (3) In combined loads, nonporous items should be placed on the lowest shelves of the rack.

Information Sheet**19. Factors that affect the disinfection of items**

- a. Type of object to be disinfected
- b. Type and number of microorganisms present
- c. Type of chemical used

20. Major uses of disinfectants

Note: Disinfectants may not be interchangeable between these areas of use.

- a. Disinfection of surfaces and large equipment (housekeeping)

Examples: Floors, walls, stainless steel furniture, electrosurgical units, anesthesia equipment

- b. Disinfection of surgical instruments

21. Disinfectant agents

- a. 2% glutaraldehyde

- (1) Widely used disinfectant, especially for semicritical instruments
- (2) Does not damage lenses or cement on lensed instruments
- (3) Not absorbed by rubber or plastic
- (4) Not recommended for use as a housekeeping disinfectant
- (5) Also used as a sterilant when used for 10 hours

Note: Its use as a sterilant was outlined in Objective 8 of this Information Sheet.

- b. Alcohol (70-95% ethyl or isopropyl)

- (1) May be used as a housekeeping disinfectant, but becomes ineffective upon evaporation
- (2) May be used on semi-critical instruments, after 0.2% sodium nitrite is added (to prevent corrosion of metals)
- (3) Cannot be used on lensed instruments with cement mountings (because it dissolves the cement)

Information Sheet

- (4) Is bactericidal, pseudomonacidal, and fungicidal in minimum of 10 minutes exposure
- (5) Is tuberculocidal and virucidal in minimum of 15 minutes exposure

c. Chlorine compounds (bleach)

- (1) Has limited use in the hospital
- (2) May be used as a housekeeping disinfectant but its odor may be objectionable
- (3) Cannot be used on any instruments because it is corrosive to metals

d. Iodine, iodophor

- (1) Iodine
 - (a) Stains fabrics and tissues
 - (b) Is effective only as long as it is wet
 - (c) May be used as a housekeeping disinfectant
- (2) Iodophor
 - (a) Is a complex of iodine and detergent
 - (b) May be used as an instrument disinfectant after 0.2% sodium nitrite is added
 - (c) Is nontoxic, nonirritating, and nonstaining
 - (d) Is bactericidal, pseudomonacidal, and fungicidal in minimum of 10 minutes exposure
 - (e) Is tuberculocidal and virucidal in minimum of 20 minutes exposure

Information Sheet**e. Phenolic compounds**

- (1) Used as housekeeping disinfectants, especially when dealing with fecal contamination
- (2) Have good stability and remain active after prolonged drying
- (3) May be used as instrument disinfectants if those instruments are not designed for skin or mucous membrane contact

Example: Cannot be used for anesthesia equipment

- (4) Are extremely irritating to skin and mucous membranes
- (5) Are bactericidal, pseudomonacidal, fungicidal, and lipid virucidal in minimum of 10 minutes exposure
- (6) Are tuberculocidal in minimum of 20 minutes exposure

22. Use of liquid chemical disinfectants

Note: Always check manufacturer's recommendations.

- a. Items must be clean and free of gross soil so the disinfectant is not inhibited from contact with the bacteria.
- b. Liquids must be properly diluted.
- c. Materials to be disinfected should be dry to prevent diluting the disinfectant.
- d. Adequate time must be provided for the disinfectant to act.
- e. Disinfectants must be rinsed from items before their use.

Sterilization and Disinfection
Unit 3-A

Student Supplement 1—Review Sterilization and Disinfection Concepts

Name _____ Date _____

Directions: Read each statement carefully, and select the best answer.

- _____ 1. Which of the following procedure uses the WEAKEST chemicals?
- a. Disinfection
 - b. Terminal decontamination
 - c. Sterilization
 - d. Antisepsis
- _____ 2. Which of the following sterilization methods is used the LEAST often?
- a. Ethylene oxide
 - b. Hot air/dry heat
 - c. Activate glutaraldehyde
 - d. Steam
- _____ 3. Which of the following are mechanical monitors for the sterilization process?
- a. Vacuum gauges
 - b. Heat-sensitive strips
 - c. Indicator tapes
 - d. Bacteria ampules
- _____ 4. Which of the following statements about cleaning suction tips or tubing would be BEST?
- a. Flush lumens and brush to ensure removal of debris.
 - b. Soak for 20 minutes.
 - c. Flush lumens with bleach; then soak.
 - d. Separate and allow them to dry; then brush.
- _____ 5. When preparing items for sterilization, which of the following statements is FALSE?
- a. Disassemble all parts.
 - b. Place heavy instruments on the bottom.
 - c. Place instruments in a solid tray.
 - d. Coil tubing loosely.

Student Supplement 1

- _____ 6. Which of the following statements about the ultrasonic cleaner is TRUE?
- a. The ultrasonic cleaner is also a sterilizer.
 - b. The ultrasonic cleaner takes about 1 hour to operate.
 - c. The ultrasonic cleaner removes all (100%) of the soil.
 - d. The ultrasonic cleaner does not rinse away the dirt and soil.
- _____ 7. In which sterilization method must the sterilized items be rinsed thoroughly two or more times with sterile distilled water and then dried with a sterile towel?
- a. Steam
 - b. Ethylene oxide
 - c. Ionizing radiation
 - d. Activated glutaraldehyde
- _____ 8. The main purpose of presoaking is to:
- a. Sterilize the instruments.
 - b. Completely disinfect the instruments.
 - c. Prevent debris from drying.
 - d. All of the above
- _____ 9. Which of the following methods of sterilization is the LEAST expensive?
- a. Steam
 - b. Ethylene oxide
 - c. Ionizing radiation
 - d. Activated glutaraldehyde
- _____ 10. Which of the following statements about ethylene oxide sterilization is FALSE?
- a. E.O. may be used on delicate instruments.
 - b. E.O. takes less than one hour to complete.
 - c. E.O. is highly toxic to your skin.
 - d. E.O. is highly flammable.

Sterilization and Disinfection Unit 3-A

Job Sheet 1—Hand Wash Instruments

Name _____ Attempt Number _____
 Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled needed supplies	_____
Followed procedure steps as outlined	_____
Used good body mechanics	_____
Used Universal Precautions	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Equipment and supplies

"Dirty" instruments
 Double sink
 Detergent-germicide
 Hand brush with fairly stiff bristles
 Towels or instrument tray
 Gown and gloves
 Eyewear and mask

B. Procedures

- ☐ 1. Put on gown, gloves, protective eyewear, and masks to protect yourself.
- ☐ 2. Fill one side of sink with warm water.
- ☐ 3. Add the recommended quantity of detergent-germicide.
- ☐ 4. Fill other side of sink with hot water.
- ☐ 5. Place instruments in the sink with the detergent-germicide.

Note: Allow adequate soaking time for the detergent to penetrate and loosen soil films.

Job Sheet 1

- ☐ 6. Using the brush, clean the instruments under water.

Note: It is *essential* to remove all particles of adhering tissue, dried blood, scale, and accumulated salts in the serrations, ratchets, and box locks of the instruments.

Figure 1



- ☐ 7. Place the clean instruments in the hot water for rinsing.
- ☐ 8. Remove the instruments from the hot water.
- ☐ 9. Place them on a towel for drying or in the tray for flash sterilization.

Evaluator's comments: _____

Sterilization and Disinfection
Unit 3-A

Job Sheet 2—Operate a High Speed Steam Sterilizer (Autoclave)

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled needed supplies	_____
Followed procedure steps as outlined	_____
Used good body mechanics	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Equipment and supplies

High speed steam sterilizer (autoclave) (automatic)
Clean instruments
Mesh bottom instrument tray
Processing indicator, if required

B. Procedure

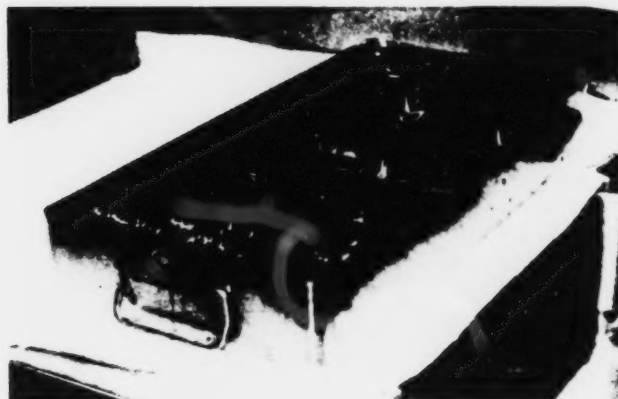
- ☐ 1. Obtain instruments.

Job Sheet 2

- ☐ 2. Place opened instruments in tray.

Note: If dictated by hospital policy, you may also need to place a processing indicator in the tray. Some hospitals use an indicator on each run.

Figure 1



- ☐ 3. Put tray of instruments in sterilizer.
- ☐ 4. Close and lock sterilizer door.
- ☐ 5. Check with your instructor or the manufacturer's instructions for the correct length of time needed to sterilize the instruments you have.
- ☐ 6. Set the timer for the correct exposure period.
- ☐ 7. Start the sterilizer.

Note: The timer button may activate the sterilizer or a button marked "sterilizer" may activate the cycle. This will vary with the manufacturer and age of the machine.

- ☐ 8. Check the graphs and gauges for an indication that the cycle is completed.

Job Sheet 2

- ☐ 9. Upon completion of the cycle, open the door **slowly**.

Caution: Stand back slightly to avoid being burned by the escaping steam.

Evaluator's comments: _____

Sterilization and Disinfection Unit 3-A

Job Sheet 3—Package an Item for Sterilization

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled needed supplies	_____
Followed procedure steps as outlined	_____
Used good body mechanics	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Equipment and supplies

- 2 double-thickness wrappers of the same size or the equivalent in another type wrapper (large enough to adequately wrap item)
- Instrument tray
- Flat surface on which to place materials such as table
- Heat- or gas-sensitive (chemical) indicator tape
- Biological processing indicator, if required

B. Procedure

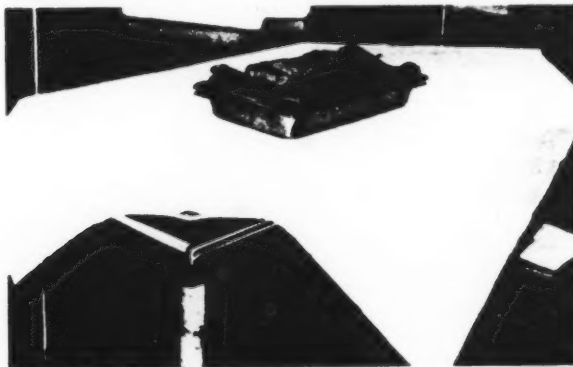
- ☐ 1. Place the wrapper diagonally on the table.

Job Sheet 3

- ☐ 2. Place the instrument tray in the center of the wrapper.

Note: If required by hospital policy, you may also need to place a processing indicator in the wrapper.

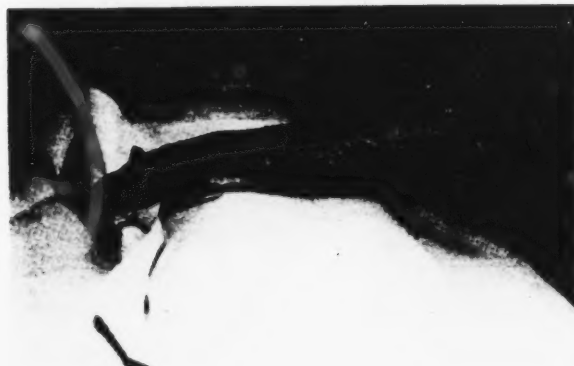
Figure 1



- ☐ 3. Grasp the corner near you, bring it up over the tray, and then fold the tip back to form a cuff.

Note: The first fold should completely cover the item.

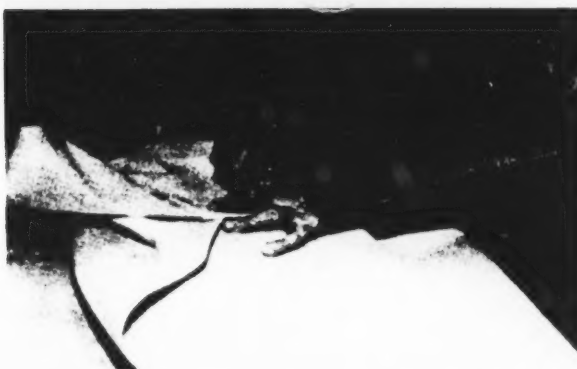
Figure 2



Job Sheet 3

- ☐ 4. Grasp one side corner, bring it over the tray, and then fold the tip back to form a cuff.

Figure 3



- ☐ 5. Grasp the other side corner and bring it over the tray in like manner.

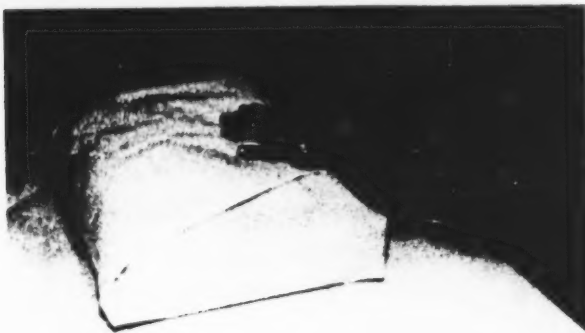
Figure 4



Job Sheet 3

- ☐ 6. Grasp the final corner and bring it over the tray.

Figure 5



- ☐ 7. Seal edges with indicator tapes.

Figure 6



- ☐ 8. Label the package according to hospital policy.

Note: This may include the following: content, date of sterilization, cycle or load number, expiration date, department, and initials of person wrapping contents.

Evaluator's comments: _____

Sterilization and Disinfection Unit 3-A

Job Sheet 4—Disinfect an Endoscope

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled needed supplies	_____
Followed procedure steps as outlined	_____
Used good body mechanics	_____
Used safety measures when handling chemicals	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Equipment and supplies

Sink
Mild detergent
Soft cloth
Glutaraldehyde
Endoscope

Note: Check with the instrument's *Care and Maintenance Manual* to make sure that it can be totally immersed.

2 sterile pans large enough to hold the endoscope
Sterile table drape
Sterile towels
Sterile gloves
Sterile distilled water
Protective eyewear

Job Sheet 3

B. Procedure

- ☐ 1. Clean scope.

Note: Refer to manufacturer's recommendations and Job Sheet 1. Use a long brush on inner channels.

Caution: Be sure all channels and stop cocks are open. Avoid scratching lenses or hitting the scope on hard surfaces.

- ☐ 2. Rinse scope thoroughly.
- ☐ 3. Dry scope thoroughly and set aside.
- ☐ 4. If necessary prepare glutaraldehyde according to the manufacturer's specifications.
- ☐ 5. Pour activated glutaraldehyde into one of the sterile pans.
- ☐ 6. Pour sterile distilled water into second pan using proper aseptic technique.
- ☐ 7. Place the endoscope in the activated glutaraldehyde.

Caution: Be sure all parts of the scope are completely immersed and contacted in the solution.

- ☐ 8. Time the instruments according to manufacturer's specifications.
- Note: Ten to fifteen minutes is generally sufficiently for disinfection. Ten hours of soaking is required for sterilization.
- ☐ 9. Place the sterile drape on table and open it using proper aseptic technique.
- ☐ 10. Open sterile towels on the sterile field using proper aseptic technique.
- ☐ 11. Don gloves using proper aseptic technique.

Job Sheet 4

- ☐ 12. Remove scope from disinfectant solution with scope pointing up when coming out of the solution so the excess solution drains away from the scope.

Caution: Avoid touching sterile objects to unsterile objects.

- ☐ 13. Place scope in sterile distilled water.
- ☐ 14. Rinse scope *thoroughly* according to hospital policy (2 or more times).
- ☐ 15. Remove scope from sterile distilled water with scope pointing up.
- ☐ 16. Obtain sterile towel from the sterile field.
- ☐ 17. Dry the instrument parts carefully with the sterile towel and place them on the sterile field.

Evaluator's comments: _____

Operating Room Sanitation Unit 4-A

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss and demonstrate operating room sanitation. The student should demonstrate these competencies by completing the job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Distinguish between concurrent disinfection and terminal disinfection.
2. Name the purposes of operating room sanitation.
3. Discuss cleaning prior to the first scheduled procedure.
4. Complete statements concerning efforts to confine contamination to the sterile area during a surgical procedure.
5. Complete statements concerning after case cleanup.
6. Select true statements concerning terminal disinfection at the completion of the daily schedule.
7. Select peripheral areas of the surgical suite which require weekly cleaning.
8. Clean up operating room after case. (Job Sheet 1)
9. Clean up operating room at end of day. (Job Sheet 2)

Operating Room Sanitation Unit 4-A

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
5. Develop teaching plan. Adjust for different learning styles.
6. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

7. Provide students with unit of instruction.
8. Discuss unit and specific objectives.
9. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
10. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

11. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
12. Make copies of the written test. Add or modify test items as needed.
13. Give written test.

Suggested Activities

14. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
15. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Show videotapes dealing with operating room sanitation and infection control. Refer to the Suggested Supplemental Resources that follow. **Communication skills**
2. Show students the detergent-germicides used locally for cleaning operating rooms.
3. Demonstrate to students the correct procedure for mixing and diluting disinfectants, if applicable in your area. **Math foundation skills**
4. Take students on a tour of a local medical facility's operating room suite to watch O.R. personnel dismantling and cleaning the O.R. at the end of a case and then preparing the O.R. for the next case. Point out responsibilities of the scrub person, the circulator, and housekeeping personnel. **Communication skills, interpersonal relations skills, and organizational effectiveness skills.**
5. Discuss local policies and procedures regarding operating room sanitation. **Communication skills**
6. Discuss the correct order in which O.R. furniture is cleaned. **Communication skills**
7. Review Universal Precautions that must be followed when cleaning the O.R. **Communication skills and organizational effectiveness skills**

Resources Used in Developing This Unit

1. Allmers, Nancy and Joan Verderame. *Review for the Surgical Technology Examination*, 3rd ed. Connecticut: Appleton and Range, 1993.
2. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nurses, Inc., 1991.

Suggested Activities

3. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, 1992
4. Fuller, Joanna. *Surgical Technology: Principles and Practice*. Philadelphia: W. B. Saunders Co., 1986.
5. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.

Suggested Supplemental Resources

1. *Is This Case Dirty?—O.R. Sanitation* (DG-1313).
2. *Infection Control: Providing a Safe Perioperative Environment* (DG-1755)

1 and 2 are available from:

Cine-Med Distribution Center
Davis + Geck Video Library
PO Box 745
Woodbury, CT 06798
800-633-0004

3. *No Time to Waste*. 28-minute videotape and study guide dealing with hazardous waste.
4. *Any Questions? The Universal Precautions Explained*. 15-minute videotape that addresses the concerns of various departments in the hospital including E.R., O.R., radiology, housekeeping, and laboratories.

3 and 4 are available from:

American Journal of Nursing Company
Educational Services Division
555 West 57th Street
New York, NY 10019-2961
212-586-8820
Fax: 212-586-5462
800-CALL AJN (225-5256)

5. *Principles of Infection Control*. 21-minute videotape that defines the chain of infection and Universal Precautions to prevent transmission of pathogens.
6. *Current Infection Control Guidelines for Healthcare Professionals*. 22-minute videotape discussing latest preventive measures and infection control guidelines from CDC.

Suggested Activities

7. *Infection Control Techniques*. 15-minute videotape covering handwashing, using gloves and gowns, handling linen and infectious waste, and cleaning a blood spill.
8. *Isolation Procedures*. 27-minute videotape explaining isolation procedures, protective apparel, and double bagging waste material. ©1991.

5 - 8 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Grove, CA 92641
800-877-1443 or 714-891-1443

9. *The Bloodborne Pathogen Standards*, 20 minutes.
10. *Medical Waste Handling*, 20 minutes.
11. *Needle Stick Prevention*, 18 minutes.

9 - 11 are available from:

Coastal Health Care
3083 Brickhouse Court
Virginia Beach, VA 23452
800-729-4325 or 804-498-3560

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Suggested Activities

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Operating Room Sanitation Unit 4-A

Answers to Written Test

1. a. T
b. C
2. a. To control the possibility of infection by reducing or eliminating bacteria
b. To reduce the possibility of cross-infection of the surgical patient
3. Discussion should include:

Flat surfaces of tables, equipment, and overhead lights should be damp-dusted with a clean, lint-free cloth moistened with detergent-germicide or disinfectant.
4. a. Any one of the following: Iodophor, phenolic detergent-germicide, or other broad-spectrum germicide
b. Plastic-lined container
c. Gloves or instruments or both
d. Kept to a minimum
e. Exterior
5. a. Before
b. Biosafety bags
c. In the center of
d. Covered
e. Circulator
f. Should
g. For each case
h. Should
i. Saved for returning to manufacturer
6. a. F g. T
b. T h. F
c. T i. F
d. T j. F
e. T k. T
f. T l. T
7. a, f, g, i

Operating Room Sanitation
Unit 4-A

Written Test

Name _____ Score _____

1. Distinguish between concurrent disinfection and terminal disinfection by placing a "C" before the definition of concurrent disinfection and a "T" before the definition of terminal disinfection.
 - _____ a. The process of rendering all articles, materials, and their immediate physical environment incapable of conveying infectious agents to other persons after the patient has left the room
 - _____ b. The immediate disinfection process following discharge of infectious materials from the body of an infected person or after contamination of articles by an infectious agent
2. Name the purposes of operating room sanitation.
 - a. _____

 - b. _____

3. Discuss cleaning prior to the first scheduled procedure.

4. Complete statements concerning efforts to confine contamination to the sterile area during a surgical procedure by filling in the blanks with the correct answers.
 - a. An area contaminated with organic debris should be given immediate attention by applying _____ to the area.
 - b. Sponges should be disposed of in a _____.

Written Test

- c. _____ should be used in counting and collecting soiled sponges.
 - d. Traffic in and out of the operating room must be _____.
 - e. _____ surfaces of specimen containers should be cleaned before removal from the operating room.
5. Complete the following statements concerning after case cleanup by circling the correct words.
- a. Gowns and gloves are removed (before, after) leaving the operating room.
 - b. All potentially infectious waste products should be placed in (plastic trash bags, biosafety bags).
 - c. When a cloth linen bag is used, wet linen should be placed (in the center of, near the outside of) the laundry bundle.
 - d. If a washer-sterilizer is not adjacent to the operating room, instruments should be (covered, uncovered) for transport to another area for terminal sterilization.
 - e. The wall suction outlet should be disconnected by the (scrub, circulator).
 - f. Operating room tables (should not, should) be moved for floor cleaning.
 - g. When mops are used for floor cleaning, a clean mop head is used (daily, for each case).
 - h. Kick buckets and frames (should not, should) be cleaned after each case.
 - i. Unopened suture is (discarded, saved for returning to manufacturer).
6. Select true statements concerning terminal disinfection at the completion of the daily schedule by placing a "T" or "F" next to the true or false statements.
- _____ a. Using good mechanical friction and water, only the actual furniture used during surgery should be scrubbed.
 - _____ b. Wheels and casters of furniture should be cleaned and free of debris.
 - _____ c. Spotlights and their tracks should be cleaned.
 - _____ d. All wall-mounted and ceiling-mounted equipment should be cleaned.
 - _____ e. Kick buckets and waste receptacles should be cleaned, disinfected, and if possible, sterilized.

Written Test

- ☐ f. Scrub sinks should be thoroughly cleaned.
 - ☐ g. Each faucet sprayhead and soap dispenser should be disassembled and cleaned and appropriate parts sterilized.
 - ☐ h. Reusable brush dispensers should be discarded.
 - ☐ i. Doors of cabinets and operating rooms do not need to be cleaned more often than weekly.
 - ☐ j. Shelves of enclosed cabinets should be cleaned daily.
 - ☐ k. Floors should be machine scrubbed and wet-vacuumed.
 - ☐ l. Transportation and utility carts should be cleaned daily with special attention given to wheels and casters.
7. Select from the following list those peripheral areas of the surgical suite which require **weekly** cleaning by placing an "X" in the appropriate blanks.
- ☐ a. Cabinet shelves
 - ☐ b. Open shelves
 - ☐ c. Kick buckets
 - ☐ d. Base of the operating room table
 - ☐ e. Air-conditioning motor
 - ☐ f. Air-conditioning grills
 - ☐ g. Interiors of steam sterilizers
 - ☐ h. Spots on walls and ceilings
 - ☐ i. Complete walls and ceilings

*Permission to duplicate this test is granted.

259

**Operating Room Sanitation
Unit 4-A**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Clean Up Operating Room After Case Rating _____

Comments: _____

Job Sheet 2—Clean Up Operating Room at End of Day Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

269

Operating Room Sanitation Unit 4-A

Information Sheet

1. Terms and definitions

- a. **Concurrent disinfection** — The immediate disinfection process following discharge of infectious materials from the body of an infected person or after contamination of articles by an infectious agent
- b. **Terminal disinfection** — The process of rendering all articles, materials, and their immediate physical environment incapable of conveying infectious agents to other persons after the patient has left the room

2. Purposes of operating room sanitation

- a. To control the possibility of infection by reducing or eliminating bacteria
- b. To reduce the possibility of cross-infection of the surgical patient

3. Cleaning prior to the first scheduled procedure

- a. Flat surfaces of tables, equipment, and overhead lights should be damp-dusted.
- b. Damp-dusting should be done with a clean, lint-free cloth moistened with detergent-germicide or disinfectant.

4. Efforts to confine contamination to the sterile area during a surgical procedure

- a. An area contaminated with organic debris such as blood should be given immediate attention by applying iodophor, phenolic detergent-germicide, or other broad-spectrum germicide to the area.
- b. Sponges should be disposed of in a plastic-lined container.
- c. Gloves or instruments or both should be used in counting and collecting soiled sponges.
- d. Traffic in and out of the operating room must be kept to a minimum.
- e. Exterior surfaces of specimen containers should be cleaned before removal from the operating room.
- f. Linen must be kept off the floor.

Information Sheet

5. After case cleanup

a. General rules

- (1) All items that have come in contact with the patient and/or sterile field are considered contaminated.
- (2) Universal Precautions should be followed. Wear gown and gloves for cleanup procedure.
- (3) Before scrubbed personnel leave the operating room, gowns and gloves should be placed in the proper waste receptacle.

b. Linens

- (1) Linen, soiled or not, from any open pack should be placed in a laundry hamper.
- (2) Used or soiled nonwoven disposable linens should be disposed of in plastic trash bags.
- (3) When a cloth linen bag is used, wet linen should be placed in the center of the laundry bundle to prevent strike-through contamination.

Note: Many institutions require that all wet articles or linen be placed in plastic bags.

- (4) Before bagging linen, all foreign objects such as sponges, instruments, and autoclave tape should be removed.
- (5) Soiled linen should be bagged in the room where it is used.
- (6) A clean laundry bag should be used for each operative procedure.

c. Waste

- (1) All potentially infectious waste products (containing blood or body fluids) should be placed in approved, puncture-resistant, biosafety bags ("red bags"). Biosafety bags should then be placed in rigid containers.
- (2) Other waste should be discarded in separate plastic trash bags.
- (3) Hospital policies should be followed regarding the proper storage, transport, and disposal of waste.

Information Sheet

- (4) Sharps should be disposed of according to hospital policy in approved, puncture-resistant containers. Use extreme care to prevent accidental injury.

Note: The greatest risk of exposure to bloodborne pathogens comes from accidental punctures to the skin by sharp contaminated objects.

d. Instruments

- (1) Instruments should be opened, disassembled, and placed in perforated trays for processing in a washer-sterilizer.
- (2) If a washer-sterilizer is not adjacent to the operating room, instruments should be covered for transport to a central clean-up area within the surgical suite or to central service area for terminal sterilization.
- (3) Basins and trays should be washed and terminally sterilized.

e. Suction

- (1) To eliminate contamination of the wall suction outlet, it should be disconnected by the circulator.
- (2) Glass suction containers should be rinsed and terminally sterilized.
- (3) Disposable suction containers should be properly sealed and disposed of in a plastic bag.
- (4) Disposable suction tubing and tips should be used because the lumen of reusable suction tubing is difficult to clean.
- (5) The contents of suction containers should be flushed down a designated hopper.
- (6) If a flushing-type hopper is not available, suction contents should be decontaminated with a disinfectant and then disposed of according to hospital policy.

f. Furniture, equipment, and supplies

- (1) The flat surfaces of furniture and equipment used during a procedure should be cleaned with an approved detergent-germicide.
- (2) Special care should be taken in cleaning the bases of the operating room table, the Mayo stand, and the platforms.

Information Sheet

- (3) After the operating room table is stripped of linen and wiped down with a disinfectant solution, the wheels should be unlocked and the table moved so the floor under it can be cleaned.
- (4) Wheels and casters of furniture should be pushed through detergent used for floor cleaning.
- (5) Anesthesia equipment should be changed after each case.
- (6) The area of the floor that has contained the surgical team should be sprayed with a detergent-germicide and wet vacuumed. Then the exterior of the vacuum equipment should be cleaned.
- (7) If a wet vacuum is unavailable, a mop and bucket with detergent-germicide should be used with a clear mop head for each case. The mop head should be discarded in a laundry hamper after each use.
- (8) Spot cleaning of ceilings and walls should be done as needed.
- (9) Overhead lights should be cleaned with a disinfectant or detergent-germicide.
- (10) Blood pressure cuffs and tubing should be cleaned after each use with a germicidal solution.
- (11) Kick buckets and frames should be disinfected and new liners placed in each one.
- (12) Table accessories such as stirrups, table extensions, and armboards should be cleaned and returned to their proper storage places.
- (13) Straps on stirrups should be removed and replaced with clean ones.
- (14) Unopened suture packets should be cleaned, dried, and placed in a box for return to the manufacturer.

Note: When cleaning has been completed, the room should be prepared for the next case.

6. Terminal disinfection at the completion of the daily schedule

- a. Using good mechanical friction and an approved chemical disinfectant, all the furniture should be thoroughly scrubbed.
- b. Wheels and casters of furniture should be cleaned and free of debris.
- c. Spotlights and their tracks should be cleaned.

Information Sheet

- d. All wall-mounted and ceiling-mounted equipment should be cleaned.
- e. Kick buckets and waste receptacles should be cleaned, disinfected, and if possible, sterilized.
- f. Scrub sinks should be thoroughly cleaned.
- g. Each faucet sprayhead and soap dispenser should be disassembled and cleaned and appropriate parts sterilized.
- h. Reusable brush dispensers should be removed, refilled, and sterilized.
- i. If reusable nail files are used, they should be sterilized.
- j. Doors of cabinets and operating rooms, especially around handles and push plates, should be cleaned daily.
- k. Open shelves should be cleaned daily.
- l. Floors should be machine scrubbed daily and solution picked up with a wet vacuum.
- m. If mops are used, a clean mop head should be used for each room and discarded in a laundry hamper.
- n. Transportation and utility carts should be cleaned daily with special attention given to wheels and casters.
- o. Stretchers should be wiped with a germicide between patients and thoroughly at the end of the day.
- p. Outsides of sterilizers (autoclaves) should be cleaned daily.
- q. Hoppers should be cleaned inside and outside daily.
- r. Cleaning equipment should be disassembled and cleaned with a detergent germicide, and then allowed to dry.
- s. After clean-up procedure is completed, room should be restocked with necessary supplies.

Information Sheet

- 7. Peripheral areas of the surgical suite which require weekly cleaning**
 - a. Air-conditioning grills
 - b. Cabinet shelves
 - c. Interiors of steam sterilizers
 - d. Complete walls and ceilings

Operating Room Sanitation Unit 4-A

Job Sheet 1—Clean Up Operating Room After Case

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Selected appropriate supplies	_____
Performed procedure as outlined	_____
Cleaned room according to hospital policy/standards	_____
Followed Universal Precautions	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Plastic liners for waste receptacles
 Plastic liner or linen bag for laundry hamper
 Cleaning cloths
 Disinfectant-germicide
 Clean suction bottles
 Wet vacuum pickup equipment or mops and buckets
 Clean linen for operating room table
 Gown and gloves

B. Procedure

- ☐ 1. Pick up all waste materials.
- ☐ 2. Remove trash bags from waste receptacles, wash receptacles, and replace with clean bags.
- ☐ 3. Remove soiled linen bags, clean receptacles or holders, and replace with clean bags.
- ☐ 4. Dispose of waste and linen in proper fashion.
- ☐ 5. Spot wash walls and ceilings as needed.
- ☐ 6. Clean surgical lights.

Job Sheet 1

- ☐ 7. Wipe flat surfaces of **all** furniture used during the surgical procedure and their bases.

Note: Be sure to include kick bucket and frame.

- ☐ 8. Move operating room table and check for dropped items.
- ☐ 9. Remove used suction bottle and replace with a clean bottle as needed.
- ☐ 10. Remove used anesthesia equipment and replace with new.

Note: This duty varies with institutions as do the others.

- ☐ 11. Clean the floor in the surgical area.
- ☐ 12. Roll the operating room table through the solution.
- ☐ 13. Properly care for equipment.
- ☐ 14. Make up operating room table with new linens.

Evaluator's comments: _____

Operating Room Sanitation Unit 4-A

Job Sheet 2—Clean Up Operating Room at End of Day

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Selected appropriate supplies	_____
Performed procedure as outlined	_____
Cleaned room according to hospital policy/standards	_____
Followed Universal Precautions	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Plastic liners for waste receptacles
 Bag for linen hamper
 Cleaning cloths
 Wall washing equipment
 Detergent-germicide
 Wet vacuum pickup equipment or mops and buckets
 Clean linen for operating room table
 Necessary items to replenish cabinets
 Surgical reflector cleaner
 Floor scrubbing machine
 Gown and gloves

B. Procedure

- ☐ 1. Assemble cleaning equipment.
- ☐ 2. Empty waste receptacles, clean, and reline.
- ☐ 3. Remove soiled linen bags, clean hamper, and replace with clean bag.

Job Sheet 2

- ☐ 4. Thoroughly wipe all furniture and equipment in room.

Note: Remember kick buckets and platforms.

- ☐ 5. Replace suction bottle as needed.

- ☐ 6. Spot clean walls and ceiling as needed.

- ☐ 7. Clean cabinet and operating room doors, especially around handles.

- ☐ 8. Replenish items in cabinets as needed.

- ☐ 9. Clean overhead light with surgical reflector cleaner.

Note: Other cleaning solutions can distort light refraction.

- ☐ 10. Machine scrub floors and wet vacuum.

- ☐ 11. Clean wheels and casters of debris and draw through cleaning solution.

- ☐ 12. Make up operating room table with clean linen.

- ☐ 13. Clean scrub sink and surrounding area.

- ☐ 14. Clean and replenish soap dispensers.

- ☐ 15. Replenish normally stocked items such as scrub brushes, nail files or cleaners, and masks.

Evaluator's comments: _____

Preoperative Routine Unit 1-B

Objective Sheet

Unit Objective

After completing this unit, the student should be able to complete statements concerning the procedures performed upon admission and before surgery, conditions required for signing an operative consent form, and safety rules for moving a stretcher. The student should also be able to transfer and transport the patient to and from surgery. The student should demonstrate these competencies by completing the assignment sheet and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to preoperative routine with their correct definitions.
2. Discuss the purposes of the preoperative routine.
3. Select true statements concerning procedures performed upon or prior to admission to the health care facility.
4. Complete statements concerning procedures performed before surgery.
5. Select true statements concerning conditions required for signing an operative consent form.
6. Discuss the purposes of an operative consent form.
7. Complete statements concerning procedures performed the morning of the surgery.
8. Match means for transporting a patient with the correct descriptions.
9. Identify the parts of a standard stretcher.
10. Select true statements concerning safety rules for transporting a patient on a stretcher.
11. Discuss responsibilities of the circulator when admitting the patient to the operating room.

Objective Sheet

12. Complete a preoperative checklist and operative consent form. (Assignment Sheet 1)
13. Prepare a stretcher. (Job Sheet 1)
14. Transport patient from room to operating room. (Job Sheet 2)
15. Transfer patient from stretcher to operating room table. (Job Sheet 3)
16. Transfer patient from operating room table to recovery stretcher. (Job Sheet 4)

Preoperative Routine Unit 1-B

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Operative Consent Form (Objective 5)
TM 2—Preoperative Checklist (Objective 7)
TM 3—Parts of a Standard Stretcher (Objective 9)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the assignment sheet. Review criteria for evaluation of this activity.
12. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Suggested Activities

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile assignment sheet rating, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Introduce this unit by dividing the class into groups and letting them draw from the following topics:
 - a. What is the purpose of the preoperative routine, and how can it be made easier for the patient and their family?
 - b. What is contained on the operative consent form, and how does it protect the patient, the surgeon, and the operating room team?
 - c. What are the responsibilities of the circulator when admitting the patient to the operating room, and how can the circulator's approach affect the patient?

Then have the groups present their topics and have group discussions with the class.
Communication skills, critical thinking skills, group effectiveness skills

2. Show available films/videos concerning the preoperative routine, transporting the patient, and admitting the patient to OR. **Communication skills**
3. Arrange for a presentation/demonstration to the class by a physical therapist concerning proper body mechanics needed for lifting and moving patients to and from stretchers. **Communication skills, influence skills**

Suggested Activities

4. Provide examples of operative consent forms and preoperative checklists used in local medical facilities.
5. Discuss the apprehension and fear that a patient may go through before surgery and steps that can be taken to reduce these fears. **Communication skills, critical thinking skills**
6. Review the assignment sheet and "set the stage" for the given patient situation. Make necessary adjustments in accordance with local clinical standards. Expand the assignment sheet to have student write their own case studies and role play them. **Communication skills, creative thinking skills, writing foundation skills, group effectiveness skills**
7. Review and demonstrate the job sheets. Make changes appropriate to local clinical settings. Then provide time for student to check each other off on the listed skills prior to final evaluation. **Tactile learning skills, group effectiveness skills**

Resources Used in Developing This Unit

1. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, 1992.
2. *Core Curriculum for Surgical Technology*. Littleton, CO: Association of Surgical Technologists, 1990.
3. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.
4. Rothrock, Jane. *Perioperative Nursing Care Plans*. St. Louis: Mosby Year Book, 1990.

Suggested Supplemental Resources

1. *For the Patient's Sake*. Available from:

Ethicon, Inc.
P.O. Box 151
Somerville, NJ 08876-0151
2. *Back Saving Skills for Patient Care*, 18 minutes. Available from:

Care Video Productions
1650 Crossings Parkway
Westlake, OH 44145

Suggested Activities

3. *Using Correct Body Mechanics*, 18 minutes. Available from:

Insight Media
121 West 85th Street
New York, NY 10024
800-233-9910 or 212-721-6316

4. *Lifting and Moving the Patient*, 17 minutes.

5. *Body Mechanics: The Science of Moving Safely*, 20 minutes.

4 and 5 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Grove, CA 92641
800-877-1443 or 714-891-1443

6. *Transportation of the Patient to the Operating Room*, 17 minutes. Available from:

Cine-Med Distribution Center
Davis + Geck Video Library
P.O. Box 745
Woodbury, CT 06898
800-633-0004

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Suggested Activities

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Preoperative Routine Unit 1-B

Answers to Assignment Sheet

Note: Answers may vary depending on the facility and instructor.

PREOPERATIVE CHECKLIST			DATE <u>Current Date</u>
			PATIENT <u>Rose Martinez</u>
			PROCEDURE <u>Rt. Femoral Hernia Repair</u>
FLOOR	OR	Each item is to be initialed and checked in the proper column.	
✓		1. Identification and allergy bracelets on (please circle)	
✓		2. Operative permit signed	
✓		3. History and physical on chart Dictated	
✓		4. Laboratory reports on chart _____	
✓		5. Allergies and other special precautions taped to front of chart	
✓		6. <u>Voided</u> catheterized. Foley installed (please circle) Time <u>6:00 a.m.</u>	
✓		7. T.P.R. on chart	
✓		8. B/P on chart	
✓		9. Contact lenses, glasses, hairpins, make-up, wigs removed; <u>nail polish</u> removed if ordered	
✓		10. Dentures, dental bridges, partial plates removed	
✓		11. Jewelry checked <u>Glasses and hearing aid</u> _____ with family <u>permitted by doctor's orders</u> _____ taped on _____ _____ locked up as follows: _____	
✓		12. O.R. cap and gown on	
✓		13. Charge slips and addressograph plate on chart	
		14. Premedication of _____ given Time _____ Given by _____	
		15. Operative area prepped	

Signed Student's Signature Floor Nurse

Signed _____ OR Nurse

Answers to Assignment Sheet

Note: Instructor may wish to give verbal instructions about signature section below or use role playing.

CONSENT FOR SURGICAL, MEDICAL, OR DIAGNOSTIC PROCEDURES	
Please read this entire form carefully. Before signing it, ask any questions you may have. Your consent is valid until you withdraw it.	
PATIENT: <u>Rose Martinez</u>	AGE: <u>78</u> DATE: <u>Current</u> TIME: _____ AM PM
** I hereby authorize Dr. <u>Elaine Smith</u> with hospital personnel and/or other (physician's full name) trained persons of his/her choice to perform upon <u>Rose Martinez</u> (patient's full name) the following surgical, medical, or diagnostic procedure(s): <u>Repair of right</u> (do not abbreviate) <u>femoral hernia</u>	
I further authorize my physician to perform any other procedure that in his/her judgement is advisable for my well-being. This additional authority is extended as I recognize that during the above-listed procedure(s), unforeseen conditions may require different or additional procedures.	
** I hereby consent to the administration of such anesthetics as are necessary; the choice of anesthetic to be used shall be made by <u>Dr. Bob Martin</u> (anesthesiologist's/anesthetist's full name)	
** I hereby state that I have read and understood this consent and that all of my questions about the procedure(s), alternative procedure(s), and risks of each have been answered in a language that I understood and that all blanks were filled in prior to my signature. I acknowledge that no guarantee or assurance has been made as to the results that may be obtained.	
Signature of patient	_____
Signature of person authorized to consent for patient	_____
Relationship to patient	_____
Witness	_____
Witness	_____
I certify that all blanks in this form were filled in prior to my signature. Further, I explained the procedure(s), alternative(s), and risks to the patient before his/her signature.	
Signature of physician	_____

**Preoperative Routine
Unit 1-B**

Answers to Written Test

1. a. 7 d. 5
 b. 1 e. 4
 c. 6 f. 2
2. Any one of the following:
 - a. To prepare the patient, both physically and emotionally, for a surgical procedure
 - b. To minimize the potential risks of surgical intervention
3. a. F e. F
 b. T f. F
 c. T g. F
 d. T h. T
4. a. Nail polish
 b. His/her legal guardian
 c. Preoperative enemas or preoperative skin cleansing
 d. Anesthesiologist or anesthetist
 e. Help lessen the patient's fears and anxiety
 f. Sedative
 g. Oral intake
5. a. F d. T
 b. F e. T
 c. F f. F
6. Any one of the following:
 - a. To protect the patient from an unratified (unapproved) procedure
 - b. To protect the medical facility, surgeon, and staff from claims of an unauthorized operation or invasive procedure
7. a. Nurse
 b. Hospital gown
 c. Are
 d. Scalp burns
 e. Lower
 f. Preoperative checklist
 g. Raised
 h. Nurse
 i. Should

Answers to Written Test

8. a. 4 d. 2
 b. 5 e. 1
 c. 3
9. a. Side rails
 b. IV standard
 c. Mattress
 d. Shelf
 e. Wheel
 f. Restraining strap
10. a. T e. F i. F
 b. F f. T j. F
 c. F g. T
 d. F h. F
11. Discussion should include any five of the following:
- a. Checks the identity of the patient.
 - b. Asks the patient who his/her surgeon is and what surgery he/she expects to receive. Verifies which side if there could be confusion.
 - c. Checks the patient's chart for the presence of the history, physical, signed operative consent, laboratory reports, and other reports if required.
 - d. Asks the patient if he/she has any known allergies.
 - e. Checks the preoperative checklist and reviews with the patient as to whether or not the necessary items have been removed.
 - f. Observes and assesses the patient's anxiety level.
 - g. Checks the vital signs.
 - h. Asks the patient if he/she has had anything to eat or drink prior to coming to surgery, and if so, when.
 - i. Conveys warmth, respect, and concern for the patient.

**Preoperative Routine
Unit 1-B**

Written Test

Name _____

Score _____

1. Match the terms on the right with the correct definitions.

- | | | |
|----------|---|------------------------------|
| _____ a. | Designated room or area where patients wait prior to being admitted to the operating room | 1. A.M. admissions |
| _____ b. | Patients entering the hospital the morning of surgery | 2. Ambulatory surgery |
| _____ c. | Assisting patients and their families with their need for information and assistance in coping with the surgical experience | 3. N.P.O. |
| _____ d. | Planned process of integrated steps which includes assessment, planning, intervention, and evaluation | 4. Nursing diagnosis |
| _____ e. | Classifying patient data collected to focus on care needed | 5. Nursing process |
| _____ f. | Surgical care performed without overnight hospitalization | 6. Patient advocate |
| | | 7. Preoperative holding area |

2. Discuss one purpose of the preoperative routine.

3. Select true statements concerning procedures performed upon or prior to admission to the health care facility by placing a "T" or "F" next to the true or false statements.

- _____ a. Admission records are completed only for patients entering the facility for major surgery.
- _____ b. Most admissions departments are responsible for having the patient sign a "Release for Treatment and Blood Transfusion."

Written Test

- _____ c. Certain important laboratory tests are performed either before or after the patient's admission to the facility depending on whether the surgery is a major or minor procedure.
 - _____ d. A urine analysis is performed for both major and minor surgery.
 - _____ e. A complete blood count is performed for minor surgeries.
 - _____ f. A type and crossmatch is indicated for all patients.
 - _____ g. Potassium level (K+) test is performed for patients with a possible blood gas disturbance.
 - _____ h. Special diagnostic procedures such as chest x-rays and electrocardiograms are performed if indicated.
4. Complete the following statements concerning procedures performed before surgery by filling in the blanks with the correct answers.
- a. _____ may be removed from both fingernails and toenails.
 - b. The operative permit is signed by the patient or _____.
 - c. Special preparations such as preoperative douches or _____ are performed as ordered by the surgeon or physician.
 - d. Ideally, the surgeon and _____ should visit the patient prior to surgery.
 - e. In some facilities, a designated person from the operating room may visit the patient. The purpose of preoperative visits is to _____.
 - f. A bedtime _____ may be ordered by the surgeon.
 - g. All _____ is discontinued as ordered. This usually occurs at midnight on the night before surgery or 6 to 8 hours prior to surgery.
5. Select true statements concerning conditions required for signing an operative consent form by placing a "T" or "F" next the true or false statements.
- _____ a. The circulator will first explain what will be performed in surgery, the possible complications involved, and alternatives available.
 - _____ b. The circulator has the ultimate responsibility for obtaining the signed consent.

Written Test

- _____ c. The patient will be asked to first sign and then read the entire form after signing.
 - _____ d. Only an individual who is mentally alert, competent, and of legal age shall be permitted to sign the consent.
 - _____ e. No patient may sign the operative permit after he/she has received preoperative medications.
 - _____ f. Every operative permit must be witnessed by one member of the patient's family.
6. Discuss one purpose of an operative consent form.
- _____
- _____
7. Complete the following statements concerning procedures performed the morning of the surgery by circling the correct words.
- a. The patient's physical and emotional status will be assessed by the (scrub person, nurse).
 - b. If ambulatory, the patient may be asked to bathe or shower and then put on clean (clothes, hospital gown).
 - c. Jewelry and prosthetic devices (are, are not) removed from the patient.
 - d. Hairpins are removed to prevent (scalp burns, loss of personal property).
 - e. If ordered by the physician, special stockings or bandages are applied to the (upper, lower) extremities.
 - f. The patient is asked to void before going to surgery, and the time is recorded on the (preoperative checklist, patient's history and physical).
 - g. After receiving preop medications, the bed should be placed in the lowest position with the side rails (raised, lowered).
 - h. All the appropriate blanks on a preoperative checklist should be checked, and it should be signed by the (patient, nurse) before the patient leaves for surgery.
 - i. The checklist (should, should not) go with the chart and the patient to OR.

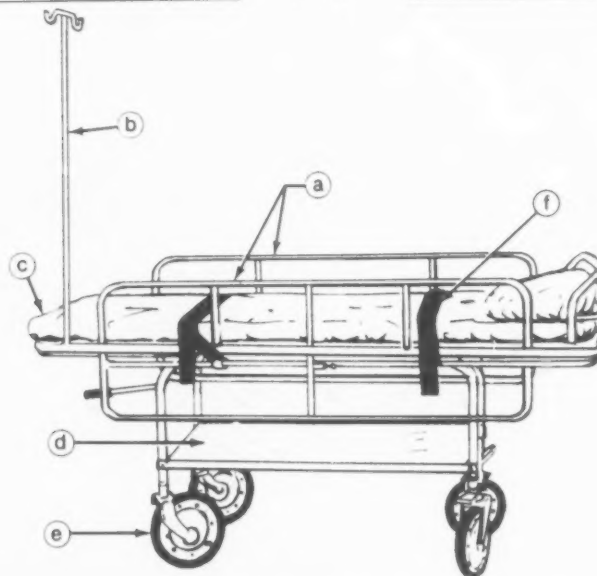
Written Test

8. Match means for transporting a patient on the right with the correct descriptions.

- | | |
|--|-------------------------------------|
| _____ a. Used for most pediatric patients under 5 years of age | 1. Stretchers (gurneys) |
| _____ b. Used for special thoracic, neuro-surgical, or orthopedic patients in traction whose conditions require the surgeon's supervision of their movement | 2. Isolettes or portable incubators |
| _____ c. May be used for patients who will have local or no anesthesia, or for patients requiring cast changes or diagnostic procedures such as cystoscopy or sigmoidoscopy; primarily used in out-patient | 3. Wheelchairs |
| _____ d. Used for newborn and premature infants | 4. Cribs |
| _____ e. Most common means for transporting adult and adolescent patients; various styles available | 5. Beds or ward beds |

9. Identify the parts of a standard stretcher, and place your answers in the blanks provided.

- | | |
|----------|----------|
| a. _____ | d. _____ |
| b. _____ | e. _____ |
| c. _____ | f. _____ |



Written Test

10. Select true statements concerning safety rules for transporting a patient on a stretcher by placing a "T" or "F" next to the true or false statements.

- _____ a. Identify the patient verbally, by wrist band, and on chart.
- _____ b. Do not lock wheels when a patient is moved from bed to stretcher.
- _____ c. Keep side rails in low position at all times.
- _____ d. Push stretcher from foot end.
- _____ e. Walk very slowly.
- _____ f. Avoid abrupt movements such as sharp turns or sudden stops.
- _____ g. Avoid bumping into walls or furniture.
- _____ h. Use side rails only when transferring the patient to the OR table.
- _____ i. Doors should be opened gently with the foot of the stretcher.
- _____ j. Constantly talk to patients so they know you are there.

11. Discuss at least five responsibilities of the circulator when admitting the patient to the operating room.

- a. _____

- b. _____

- c. _____

- d. _____

- e. _____

**Preoperative Routine
Unit 1-B**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Complete Preoperative Checklist and
Operative Consent Form Rating _____

Comments: _____

Job Sheet 1—Prepare a Stretcher Rating _____

Comments: _____

Job Sheet 2—Transport Patient From Room
to Operating Room Rating _____

Comments: _____

Job Sheet 3—Transfer Patient From Stretcher
to Operating Room Table Rating _____

Comments: _____

Job Sheet 4—Transfer Patient From Operating Room
Table to Recovery Stretcher Rating _____

Comments: _____

Unit Evaluation Form

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____

Date _____

Student Signature _____

Date _____

*Permission to duplicate this form is granted.

288

Operative Consent Form

CONSENT FOR SURGICAL, MEDICAL, OR DIAGNOSTIC PROCEDURES

Please read this entire form carefully. **Before** signing it, ask any questions you may have. Your consent is valid until you withdraw it.

PATIENT: _____ AGE: _____ DATE: _____ TIME: _____ AM
PM

** I hereby authorize Dr. _____ with hospital personnel and/or other
(physician's full name)
trained persons of his/her choice to perform upon _____
(patient's full name)
the following surgical, medical, or diagnostic procedure(s) _____
(do not abbreviate)

I further authorize my physician to perform any other procedure that in his/her judgement is advisable for my well-being. This additional authority is extended as I recognize that during the above-listed procedure(s), unforeseen conditions may require different or additional procedures.

** I hereby consent to the administration of such anesthetics as are necessary; the choice of anesthetic to be used shall be made by

(anesthesiologist's/anesthetist's full name)

** I hereby state that I have read and understood this consent and that all of my questions about the procedure(s), alternative procedure(s), and risks of each have been answered in a language that I understood and that all blanks were filled in prior to my signature. I acknowledge that no guarantee or assurance has been made as to the results that may be obtained.

Signature of patient _____

Signature of person
authorized to consent
for patient _____

Relationship to patient _____

Witness: _____

Witness: _____

I certify that all blanks in this form were filled in prior to my signature. Further, I explained the procedure(s), alternative(s), and risks to the patient before his/her signature.

Signature of physician _____

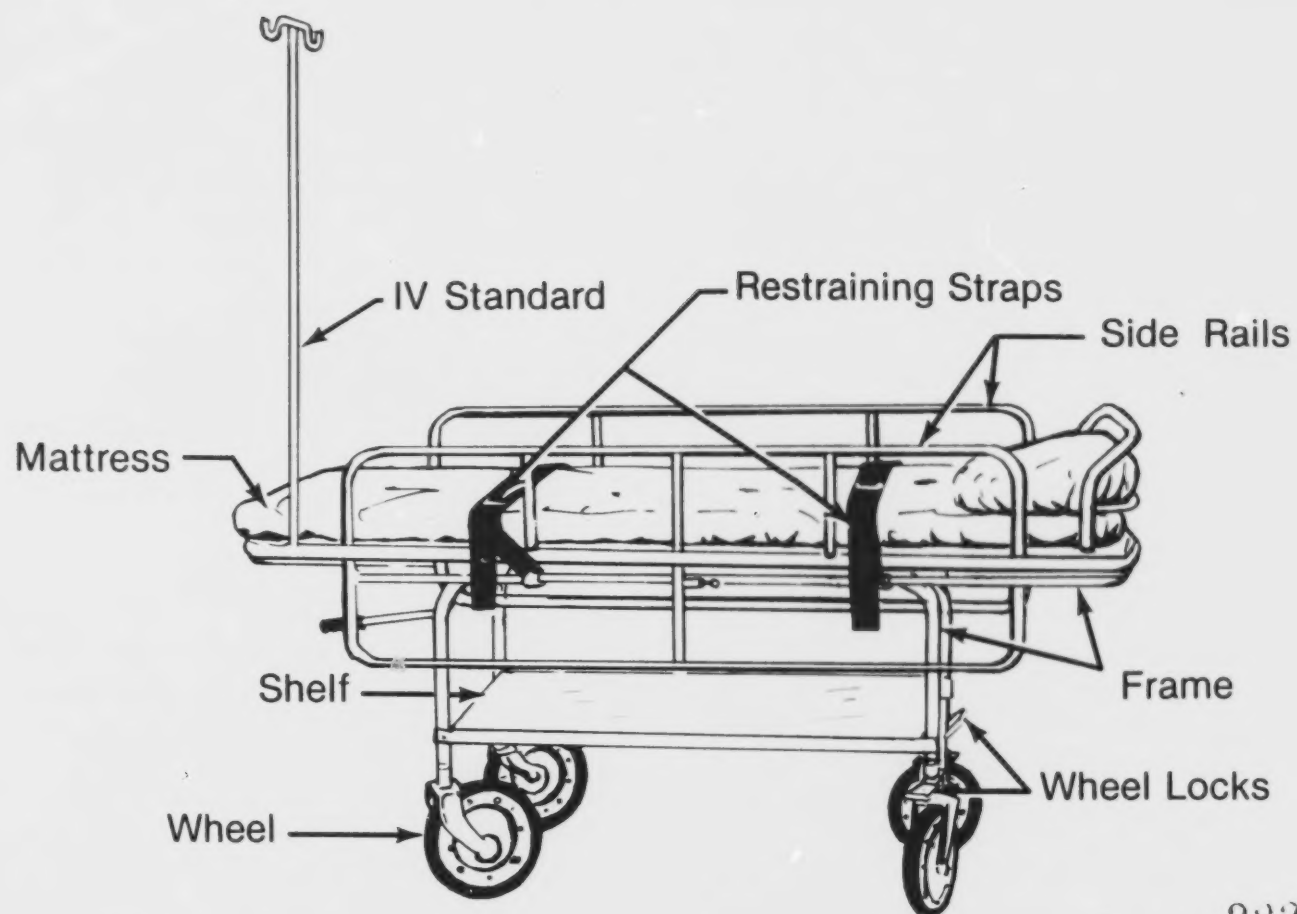
Preoperative Checklist

PREOPERATIVE CHECKLIST			DATE _____
			PATIENT _____
FLOOR	OR	Each item is to be initialed and checked in the proper column.	PROCEDURE _____
		1. Identification and allergy bracelets on (please circle)	
		2. Operative permit signed	
		3. History and physical on chart Dictated	
		4. Laboratory reports on chart _____	
		5. Allergies and other special precautions taped to front of chart	
		6. Voided, catheterized, Foley installed (please circle) Time _____	
		7. T.P.R. on chart	
		8. B/P on chart	
		9. Contact lenses, glasses, hairpins, make-up, wigs removed; nail polish removed if ordered	
		10. Dentures, dental bridges, partial plates removed	
		11. Jewelry checked ____ with family ____ taped on ____ locked up as follows: _____	
		12. O.R. cap and gown on	
		13. Charge slips and addressograph plate on chart	
		14. Premedication of _____ given Time _____ Given by _____	
		15. Operative area prepped	

Signed _____ Floor Nurse

Signed _____ OR Nurse

Parts of a Standard Stretcher



**Preoperative Routine
Unit 1-B**

Information Sheet

1. Terms and definitions

- a. **A.M. admissions** — Patients entering the hospital the morning of surgery

Note: Necessary lab work, paper work, and x-rays are done a day or more before the morning of surgery.

- b. **Ambulatory surgery** — Surgical care performed without overnight hospitalization
- c. **N.P.O.** — Nothing by mouth
- d. **Nursing diagnosis** — Classifying patient data collected to focus on care needed
- e. **Nursing process** — Planned process of integrated steps which includes
- (1) Assessment — Collecting information
 - (2) Planning — Preparing and setting goals
 - (3) Intervention — Performing care
 - (4) Evaluation — Determining if goals were met
- f. **Patient advocacy** — Assisting patients and their families with their need for information and assistance in coping with the surgical experience
- g. **Preoperative holding area** — Designated room or area where patients wait prior to being admitted to the operating room

Note: This is where essential lab work, x-ray reports, operative permit, and other necessary documentation are evaluated, and any preoperative medicine may be administered.

2. Purposes of the preoperative routine

- a. To prepare the patient, both physically and emotionally, for a surgical procedure
- b. To minimize the potential risks of surgical intervention

Information Sheet

3. Procedures performed upon or prior to admission to the health care facility

- a. Admission records are completed only for patients entering the facility. This includes pertinent information concerning patient's name, address, age, marital status, occupation, next-of-kin, and insurance coverage.
- b. Most admissions departments are responsible for having the patient sign a "Release for Treatment and Blood Transfusion" which gives the doctor and the facility permission to perform necessary treatments and give blood to the patient should the need arise.
- c. Certain important laboratory tests are performed either before or after the patient's admission to the facility depending on whether the surgery is a major or minor procedure.

Note: Major surgeries include all procedures performed in a body cavity (abdominal, cranial, pelvic, and thoracic), as well as orthopedic surgeries, all eye surgeries, tendon repairs, and cesarean sections. Minor surgeries include such procedures as a D & C, T & A, myringotomy with tubes, and removal of warts or moles.

- (1) Major surgery laboratory tests commonly include complete blood count (CBC) and urine analysis (UA).
 - (2) Minor surgery laboratory tests commonly include hemoglobin and hematocrit (H & H) and urine analysis (UA).
- d. Other lab tests will be performed if specially indicated.
- (1) Type and crossmatch for blood — Indicated if a transfusion is expected as in some major surgeries and almost all cardiovascular surgeries
 - (2) Blood chemistry tests (SMA 6, 12, 18, & 20) — Performed for patients with a possible blood gas or electrolyte disturbance, such as in a patient with cardiovascular, respiratory, or renal disorders
 - (3) Potassium level (K+) test — Performed on all cardiac patients, those patients with impaired renal function, and patients on diuretics
 - (4) Clotting time — Indicated for all T & A's, most cardiovascular surgeries, and all patients on anticoagulant therapy

Information Sheet

- e. Special diagnostic procedures are performed if indicated.

Note: These will vary according to the facility's policy.

- (1) Electrocardiogram (EKG) — Performed on all patients with cardiovascular disorders; may also be indicated for patients over a certain age (decided by hospital — between 30-40)
- (2) Chest x-rays — Taken on some patients if the physician feels it is necessary and in accordance with the institution's policies

- f. Appropriate consultations are requested if necessary.

4. Procedures performed before surgery

Note: In some health care facilities, the operative site is shaved and cleansed on the night before surgery. However, most facilities have changed the policy to state that the prep shall be done immediately before surgery. If the skin is nicked with a razor, there would be less time for inflammation and infection to set in.

- a. Nail polish may be removed from both fingernails and toenails to allow the observation of the nail beds during surgery.

Note: This is one method for observing adequate circulation and oxygenation of the tissues; however, pulse oximeters are routinely used for monitoring oxygenation and may require removal of polish from one finger only.

- b. The operative permit is signed by the patient or his/her legal guardian.
- c. Special preparations are performed as ordered by the surgeon or physician.
 - (1) Preoperative enemas — These are usually given to patients having procedures involving the gastrointestinal, pelvic, perianal, or perineal areas. They are performed when it is advantageous to have the bowel and rectum empty.
 - (2) Preoperative douche — This is usually performed on a woman having a hysterectomy or a vaginal procedure.
 - (3) Preoperative skin cleansing — This is commonly performed on patients having orthopedic procedures.
- d. Ideally, the surgeon and anesthesiologist/anesthetist should visit the patient prior to surgery.

Information Sheet

- e. In some facilities, a designated person from the operating room may visit the patient. The purpose of preoperative visits is to help lessen the patient's fear and anxiety by explaining in understandable terms what he/she can expect before and during surgery and by allowing the patient to ask questions.
- f. A bedtime sedative may be ordered by the surgeon.
- g. All oral intake is discontinued as ordered. This usually occurs at midnight on the night before surgery. The patient should receive nothing by mouth (NPO) for 6 to 8 hours prior to surgery. This helps prevent possible vomiting and aspiration of gastric contents during induction of anesthesia.

5. Conditions required for signing an operative consent form (Figure 1)

- a. The surgeon will first explain what will be performed in surgery, the possible complications involved, and alternatives available. The surgeon is responsible for informing the patient and for getting the patient's consent to surgery.
- b. The floor or outpatient unit is responsible for obtaining the actual signed consent form.
- c. The patient will be asked to read the entire form before signing.
- d. Only an individual who is mentally alert, competent, and of legal age shall be permitted to sign the consent.
 - (1) Operative permits for minors will be signed by a parent or legal guardian.
 - (2) Operative permits for mentally incompetent persons shall be signed by a legal guardian.

Note: The guardian can be an individual or an agency.

- e. No patient may sign the operative permit after he/she has received preoperative medications.
- f. The blanks on the consent form will be completely filled in.
 - (1) Patient's full name
 - (2) Date and time signed
 - (3) Surgeon's name
 - (4) Anesthesiologist's or anesthesiologist's name
 - (5) Each operative procedure to be performed
 - (6) Patient's signature
 - (7) Witness(es) signature

Information Sheet

- g. Every operative permit must be witnessed by one or more personnel, depending on the facility's policy.

Note: Legal documents may **NOT** be witnessed by students.

- h. For an emergency operation, a consent is desired, but not essential. Permission for surgery may be sought from:

- (1) A parent, legal guardian, or a relative by telephone, telegram, or written communication
- (2) If by phone, two nurses or physicians must monitor the call and sign the form. The form should then be signed by the parent, guardian, or relative upon their arrival to the hospital.
- (3) If no relative can be reached, a written consultation by two physicians other than the surgeon will usually suffice until a relative arrives.

Figure 1

CONSENT FOR SURGICAL MEDICAL OR DIAGNOSTIC PROCEDURES				
Please read this entire form carefully. Before signing it, ask any questions you may have. Your consent is valid until you withdraw it.				
PATIENT _____	AGE _____	DATE _____	TIME _____	AM PM
I hereby authorize Dr. _____ (physician's full name) with hospital personnel and/or other trained persons of his/her choice to perform upon _____ (patient's full name) the following surgical, medical, or diagnostic procedure(s): _____ (do not abbreviate)				
I further authorize my physician to perform any other procedure that in his/her judgement is advisable for my well-being. This additional authority is extended as I recognize that during the above listed procedure(s) unforeseen conditions may require different or additional procedures.				
I hereby consent to the administration of such anesthetics as are necessary; the choice of anesthetic to be used shall be made by _____ (anesthesiologist's/anesthetist's full name)				
I hereby state that I have read and understood this consent and that all of my questions about the procedure(s), alternative procedure(s), and risks of each have been answered in a language that I understood and that all blanks were filled in prior to my signature. I acknowledge that no guarantee or assurance has been made as to the results that may be obtained.				
Signature of patient _____				
Signature of person authorized to consent for patient _____				
Relationship to patient _____				
Witness _____				
Witness _____				
I certify that all blanks in this form were filled in prior to my signature. Further, I explained the procedure(s), alternative(s), and risks to the patient before his/her signature.				
Signature of physician _____				

Information Sheet

6. Purposes of an operative consent form

- a. To protect the patient from an unratified (unapproved) procedure
- b. To protect the medical facility, surgeon, and staff from claims of an unauthorized operation or invasive procedure

7. Procedures performed the morning of the surgery

- a. Both the patient's physical and emotional status will be assessed by the nurse.

Note: Any signs of distress could affect the course of the surgery.

- b. If ambulatory, the patient may be asked to bathe or shower and then put on a clean hospital gown.
- c. All jewelry, wigs, and prosthetic devices such as contact lenses, eyeglasses, dentures, removable partial plates, and eye, extremity, and breast prostheses are removed from the patient for safekeeping and for patient safety.

Note: In some special instances, the patient may be requested to wear his/her dentures, eyeglasses, or hearing aid to surgery.

- d. Hairpins are removed to prevent scalp burns or injury.
- e. If ordered by the physician, special (anti-embolic) stockings or elastic bandages are applied to the lower extremities to prevent blood clots.
- f. The patient is asked to void before going to surgery, and the time is recorded on the preoperative checklist.
- g. The patient and chart are equipped with adequate identification.
- h. Preoperative medications are given as ordered by the physician or anesthesiologist.
 - (1) After receiving preop medications, the bed should be placed in the lowest position with the side rails raised to prevent the patient from falling out of bed.
 - (2) The patient must be advised to not get out of bed since the drugs cause drowsiness and dizziness.
- i. Most hospitals use a preoperative checklist to assure that the patient has been properly prepared for surgery and that all records accompany the patient to the operating room. (Figure 2)

Information Sheet

- j. All the appropriate blanks on a preoperative checklist should be checked and signed by the nurse before the patient leaves for surgery. The checklist should go with the chart and the patient to OR.

Figure 2

PREOPERATIVE CHECKLIST		DATE _____
		PATIENT _____
		PROCEDURE _____
FLOOR	OR	Each item is to be initialed and checked in the proper column
		1 Identification and allergy bracelets on (please circle)
		2 Operative permit signed
		3 History and physical on chart Dictated
		4 Laboratory reports on chart
		5 Allergies and other special precautions taped to front of chart
		6 Voided, catheterized, Foley installed (please circle) Time _____
		7 T P R on chart
		8 B P on chart
		9 Contact lenses, glasses, hairpins, make-up, wigs removed nail polish removed if ordered
		10 Dentures, dental bridges, partial plates removed
		11 Jewelry checked ____ with family ____ taped on ____ locked up as follows _____
		12 O R cap and gown on
		13 Charge slips and addressograph plate on chart
		14 Premedication of _____ given Time _____ Given by _____
		15 Operative area prepped
Signed _____		Floor Nurse
Signed _____		OR Nurse

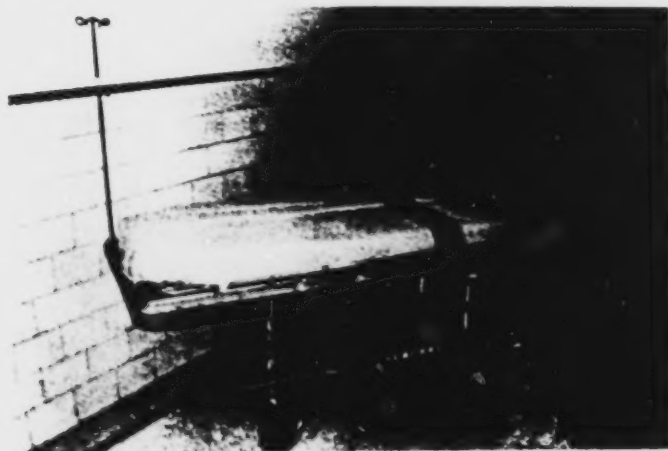
Information Sheet

8. Means for transporting a patient

- a. **Stretchers (gurneys)** — Most common means for transporting adult and adolescent patients; various styles available

Note: Stretchers may be adjustable or non-adjustable. Some styles may also be used as operating tables under certain circumstances.

Figure 3



- b. **Beds or ward beds** — Used for special thoracic, neurosurgical, or orthopedic patients in traction whose conditions require the surgeon's supervision of their movement

Figure 4



Information Sheet

- c. **Cribs and isolettes** — Used for pediatric patients for increased safety
- (1) Isolettes or portable incubators — Used for newborn and premature infants
 - (2) Cribs — Used for most pediatric patients under 5 years of age

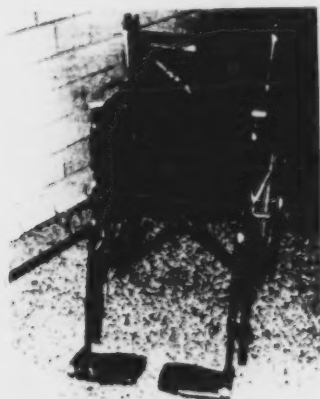
Figure 5



- d. **Wheelchairs** — May be used for patients who will have local or no anesthesia, or for patients requiring cast changes or diagnostic procedures such as cystoscopy or sigmoidoscopy; primarily used in out-patient

Note: Wheelchairs are unacceptable if the patient has been sedated.

Figure 6

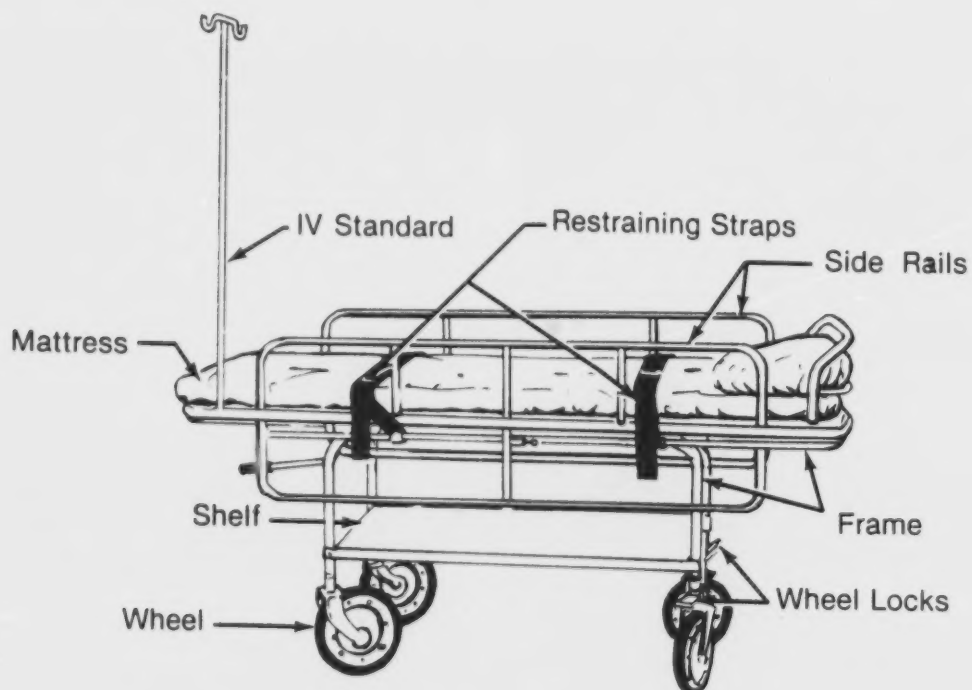


Information Sheet

9. Parts of a standard stretcher (Figure 7)

- a. Wheels
- b. Wheel locks
- c. Frame
- d. Shelf (for blanket or bottles)
- e. Mattress
- f. IV standard
- g. Side rails
- h. Restraining straps

Figure 7



Information Sheet**10. Safety rules for transporting a patient on a stretcher**

Note: Have someone help you move the patient onto the stretcher if necessary.

a. Prior to transporting the patient:

- (1) Greet and identify the patient—Verbally, by wristband, and on chart.
- (2) Let the patient know why you are there.
- (3) Review the chart for completeness. Refer to preoperative checklist to make sure everything is ready.
- (4) Lock the wheels.
- (5) Assist the patient onto the stretcher. Avoid unnecessary exposure. Give special attention to catheters, drains, IVs, etc.
- (6) Cover patient, and apply safety strap over blanket 2 inches above the knees.
- (7) Secure side rails in high position.
- (8) Unlock wheels.

Note: Many health care facilities require that two people be in attendance when a stretcher is in motion; others only require one person. Nursing personnel will accompany the operating room person when necessary, depending on the facility's policies and the preoperative assessment of the patient.

b. Push stretcher from head end, facing patient in direction of travel.

Note: This allows better control of the stretcher's movements, permits easier observation of the patient's face, and promotes patient security.

- c. Walk at a moderate speed.
- d. Avoid abrupt movements such as sharp turns or sudden stops.
- e. Avoid bumping into walls or furniture.
- f. Use restraint straps and side rails at all times.
- g. Tell the patient when you are about to go over a bump or rough area or when you are approaching a ramp.

Information Sheet

h. When approaching inclining and declining ramps, explain to patient what is happening, stop movement of stretcher at least 2 feet from start of incline or decline, open door, secure it, and proceed with firm control of stretcher on ramps at all times.

i. Open and secure doors before pushing stretcher through doorways.

j. Avoid excessive conversation.

Note: Some conversation may be welcomed depending on the patient and his/her sedation, but it should not be excessive. If the patient asks for information concerning surgery, refer those questions to the proper person in the operating room.

k. Check frequently, especially if the patient is restless, to ensure patient's elbows, hands, and feet are contained within the side rails to prevent accidental injury.

l. Use extreme care when moving any vehicle such as a crib or isolette with small wheels which make the vehicle easy to overturn.

m. If patient has an IV or a catheter, make sure they remain running.

Note: Some facilities then transfer patients to an OR stretcher as a measure for preventing cross-contamination.

11. Responsibilities of the circulator when admitting the patient to the operating room

a. Checks the identity of the patient.

(1) Asks the patient his/her name.

(2) Checks the patient's wristband for the same name and for the patient I.D. number.

(3) Checks the patient's chart for the same name and I.D. number.

(4) Checks the identifying tag on the bed for the same name and I.D. number if the bed has one.

b. Asks the patient who his/her surgeon is and what surgery he/she expects to receive. Verifies which side if there could be confusion.

Examples: Right eye, left knee

Information Sheet

c. Checks the patient's chart for the presence of the following items:

- (1) History and physical
- (2) Signed operative consent

Note: The operation on the consent must correspond with the surgery the patient expects to receive. If not, the OR supervisor must be immediately notified.

- (3) Laboratory reports such as CBC, H & H, and others if required
- (4) Other reports such as x-ray reports and EKG reports if required

d. Asks the patient if he/she has any known allergies.

e. Checks the preoperative checklist and reviews with the patient as to whether or not the necessary items have been removed.

f. Observes and assesses the patient's anxiety level.

g. Checks the vital signs.

h. Asks the patient if he/she has had anything to eat or drink prior to coming to surgery, and if so, when.

i. Conveys warmth, respect, and concern for the patient in the following ways:

- (1) Asks the patient if there is anything they need such as a blanket.
- (2) Keeps the patient covered and unexposed.
- (3) Answers the patient's questions, but avoids unnecessary talking.

Note: In some facilities the patient may be shave prepped in the holding area prior to surgery, if required. Also in the holding area nursing or anesthesia personnel may start an IV, if one has not already been started.

**Preoperative Routine
Unit 1-B**

**Assignment Sheet 1—Complete a Preoperative Checklist and
Operative Consent Form**

Name _____ Overall Rating _____

Evaluation criteria	Rating
Preoperative checklist:	
Patient information is completed	_____
All items are initialled and check in appropriate area	_____
List is signed and dated	_____
Operative consent:	
All appropriate blanks are filled in with correct information, ready for patient/dr. signature	_____

Instructions: Given the following information:

1. Check off and initial the given preoperative checklist indicating the blanks that would need to be completed prior to the patient leaving for surgery.
2. Fill in the given operative consent form with the needed information.

You are the floor nurse. Your patient is Mrs. Rose Martinez, a 78-year-old female who has been admitted for the repair of a right femoral hernia to be performed by Dr. Elaine Smith under general anesthesia.

The nursing assessment shows that the patient wears dentures, a hearing aid, and glasses. She is allergic to penicillin, is ambulatory, and denies any problems with urination.

Doctor's orders include:

1. Liquid diet for supper.
2. Sleeping medication and preoperative medication to be ordered by anesthesiologist Dr. Bob Martin.
3. Lab work to include: U.A., SMA 20, EKG, Chest x-ray
4. Operative permit to read Repair of Right Femoral Hernia
5. Fleet enema prior to bedtime
6. 6:00 a.m. shower with Betadine®
7. Shave prep to be done in surgery
8. Remove nail polish from left index finger only.
9. Patient may wear hearing aid and glasses to surgery.

The patient showered and voided at 6:00 a.m. It is now 6:30 a.m. Surgery just called and is coming to pick up Mrs. Martinez. The patient will receive premedication and prepping in the O.R. holding area.

Assignment Sheet 1

PREOPERATIVE CHECKLIST		DATE _____
		PATIENT _____
FLOOR	OR	PROCEDURE _____
		1. Identification and allergy bracelets on (please circle)
		2. Operative permit signed
		3. History and physical on chart Dictated
		4. Laboratory reports on chart _____
		5. Allergies and other special precautions taped to front of chart
		6. Voided, catheterized, Foley installed (please circle) Time _____
		7. T.P.R. on chart
		8. B/P on chart
		9. Contact lenses, glasses, hairpins, make-up, wigs removed; nail polish removed if ordered
		10. Dentures, dental bridges, partial plates removed
		11. Jewelry checked ____ with family ____ taped on ____ locked up as follows: _____
		12. O.R. cap and gown on
		13. Charge slips and addressograph plate on chart
		14. Premedication of _____ given Time _____ Given by _____
		15. Operative area prepped

Signed _____ Floor Nurse

Signed _____ OR Nurse

Assignment Sheet 1

CONSENT FOR SURGICAL,
MEDICAL, OR DIAGNOSTIC PROCEDURES

Please read this entire form carefully. **Before** signing it, ask any questions you may have. Your consent is valid until you withdraw it.

PATIENT: _____ AGE: _____ DATE: _____ TIME: _____ ^{AM}_{PM}

** I hereby authorize Dr. _____ with hospital personnel and/or other
(physician's full name)
 trained persons of his/her choice to perform upon _____
(patient's full name)
 the following surgical, medical, or diagnostic procedure(s) _____
(do not abbreviate)

I further authorize my physician to perform any other procedure that in his/her judgement is advisable for my well-being. This additional authority is extended as I recognize that during the above-listed procedure(s), unforeseen conditions may require different or additional procedures.

** I hereby consent to the administration of such anesthetics as are necessary; the choice of anesthetic to be used shall be made by

(anesthesiologist's/anesthetist's full name)

** I hereby state that I have read and understood this consent and that all of my questions about the procedure(s), alternative procedure(s), and risks of each have been answered in a language that I understood and that all blanks were filled in prior to my signature. I acknowledge that no guarantee or assurance has been made as to the results that may be obtained.

Signature of patient _____

Signature of person
authorized to consent
for patient _____

Relationship to patient _____

Witness: _____

Witness: _____

I certify that all blanks in this form were filled in prior to my signature. Further, I explained the procedure(s), alternative(s), and risks to the patient before his/her signature.

Signature of physician _____

**Preoperative Routine
Unit 1-B**

Job Sheet 1—Prepare a Stretcher

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Properly assembled needed supplies	_____
Correctly performed outlined steps	_____
Used good body mechanics	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Stretcher
Clean sheet
Drawsheet
Clean pillowcase
Pillow

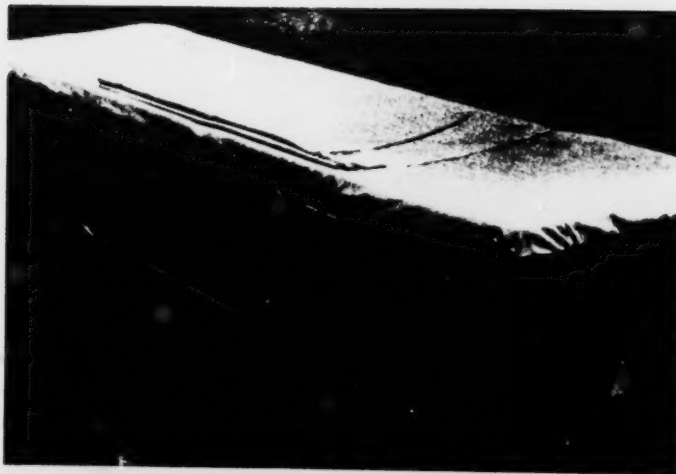
B. Procedure

- ☐ 1. Identify head end of stretcher.
- ☐ 2. Cover mattress of stretcher with a clean sheet, tucking sides and ends under mattress.

Job Sheet 1

- ☐ 3. Place drawsheet in center of stretcher.

Figure 1



- ☐ 4. Put clean pillowcase on pillow and put at head end of the stretcher.
- ☐ 5. For stretchers that do not have permanently attached IV poles, check hospital policy to see if you should now attach the IV pole to the stretcher.

Evaluator's comments: _____

**Preoperative Routine
Unit 1-B**

Job Sheet 2—Transport Patient From Room to Operating Room

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Properly assembled needed supplies	_____
Properly followed outlined steps	_____
Utilized proper communication skills	_____
Properly protected patient from unnecessary exposure	_____
Followed safety measures	_____
Utilized proper body mechanics	_____
Provided for patient comfort	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Cover gown or lab coat
Shoe covers
Prepared stretcher
Bath blanket
Patient in hospital bed

B. Procedure

Note: You should be in O.R. attire before beginning this job sheet.

- ☐ 1. Obtain patient information slip from operating room head nurse.
- ☐ 2. Don cover gown or lab coat.
- ☐ 3. Remove mask according to instructor's directions.
- ☐ 4. Take prepared stretcher to patient's unit as indicated on information slip.

Job Sheet 2

- ☐ 5. Notify nursing personnel that patient is to be transported to operating room. State patient's name, room, and bed numbers; hand information slip to nurse; and ask that a member of the nursing staff assist in the patient transfer.

Note: A patient must never be moved without adequate assistance.

- ☐ 6. Obtain patient's chart and have floor nurse sign patient out to surgery.
- ☐ 7. Check patient's chart to see that operative permit has been properly signed, witnessed, and is on the chart; that preoperative checklist procedures have been carried out; and that addressograph plate is included.

Note: Nursing personnel will have checked the patient's chart for these items prior to handing it to you and are responsible for all of these. However, you can save many delays if you will also check.

- ☐ 8. Take the stretcher and chart to the patient's room.
- ☐ 9. Introduce yourself to the patient.
- ☐ 10. Verify patient's identification by comparing patient's name on the chart with the name on the information slip and the patient's identification band.
- ☐ 11. Explain destination to patient.

Note: If family or visitors are present, inform them where they may wait until the surgery is completed.

- ☐ 12. Place a bath blanket over the patient and fold top bed covers down avoiding unnecessary exposure of patient.

Note: The patient should be properly gowned and prepared for transfer by nursing personnel.

- ☐ 13. Position stretcher beside bed (head to head), and lock wheels of both the stretcher and the patient's bed.
- ☐ 14. Raise height of bed even with the stretcher.
- ☐ 15. Stand at side of stretcher, holding it firmly against the bed while nursing personnel stand on opposite side of bed to assist as necessary.
- ☐ 16. If the patient is able to move onto the stretcher without assistance, ask him or her to do so, helping as necessary. If the patient is unable to move, obtain sufficient help to transfer him or her to the stretcher.

Job Sheet 2

- ☐ 17. Check to make sure that IVs and catheters have not been dislodged and are still running.
- ☐ 18. Position the patient preferably with patient lying flat, hands across chest or abdomen, elbows in from edge of stretcher, and knees down.

Note: With nursing personnel approval, the patient may be transported in another position if their condition requires it.

- ☐ 19. Ask the patient if they are comfortable or if they would like a blanket or extra pillow to make them more comfortable.
- ☐ 20. Raise side rails.
- ☐ 21. Fasten restraining strap. It should be loose enough to allow two fingers to be passed between strap and patient.
- ☐ 22. Place patient's chart under stretcher mattress.
- ☐ 23. Move stretcher to operating room suite entrance following the safety rules outlined in this unit's information sheet.
- ☐ 24. Remove cover gown, and put on shoe covers before entering operating room suite.
- ☐ 25. Push the stretcher into the holding room and lock wheels.
- ☐ 26. Transfer the care of patient to the holding room OR nurse.

Note: The nurse checks the patient's identification and chart and inserts necessary operating room forms.

Evaluator's comments: _____

**Preoperative Routine
Unit 1-B**

Job Sheet 3—Transfer Patient From Stretcher to Operating Room Table

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Properly assembled needed supplies	_____
Utilized proper communication skills	_____
Properly protected patient from unnecessary exposure	_____
Followed safety measures	_____
Provided for patient comfort	_____
Utilized proper body mechanics	_____
Followed outlined steps	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Stretcher with patient
Operating room table

B. Procedure

- ☐ 1. Obtain assistance for transfer.
- ☐ 2. Lower side rails, and position the stretcher beside the operating table.
- ☐ 3. Lock wheels on stretcher.
- ☐ 4. Check to see that operating table is locked.
- ☐ 5. Release safety strap.
- ☐ 6. Hold stretcher tightly against OR table while another person stands on the opposite side of the OR table to receive the patient.
- ☐ 7. Explain transfer procedure to patient.

Job Sheet 3

- ☐ 8. If patient is able to move onto the table, ask him or her to do so. If patient is unable to do so, obtain additional assistance and move the patient.
 - ☐ a. Avoid unnecessary exposure of patient.
 - ☐ b. Give special attention to catheters, drainage tubes, and IVs to prevent dislodging.
 - ☐ c. Do not transfer bed sheet or drawsheet from stretcher.

Note: Some patients will not be moved until they are anesthetized. The surgeon will supervise the transfer of some patients such as those in traction.

- ☐ 9. Fasten operating table safety strap 2" above the knees. It should be loose enough to allow two fingers to be passed between strap and patient.
- ☐ 10. Transfer the care of the patient to the OR circulator.

Note: The patient must NEVER be left unattended.

Evaluator's comments: _____

Preoperative Routine Unit 1-B

Job Sheet 4—Transfer Patient From Operating Room Table to Recovery Stretcher

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled needed supplies	_____
Utilized appropriate communication skills	_____
Followed safety measures	_____
Properly maintained patient body alignment	_____
Properly provided for patient comfort	_____
Utilized good body mechanics	_____
Performed tasks following outlined protocol	_____
Performed task in allotted time	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Patient on operating room table
Recovery stretcher
Drawsheet or roller, optional

B. Procedure

- ☐ 1. Obtain permission from anesthesiologist/surgeon to move patient to recovery room.
- ☐ 2. Lower side rails on recovery stretcher, and position it beside the operating table.
- ☐ 3. Lock wheels on stretcher.
- ☐ 4. Clamp all chest tubes, and transfer chest bottles and other drainage mechanisms to the stretcher.
- ☐ 5. Unfasten operating table restraining strap(s).
- ☐ 6. Place patient's arms at sides.

Job Sheet 4

- ☐ 7. Obtain assistance for transferring the patient.
 - ☐ a. One person at the head of the operating table to support the patient's head

Note: This person is usually the anesthesiologist.
 - ☐ b. One person beside the stretcher
 - ☐ c. One person on the other side of the patient beside the operating table
 - ☐ d. One person at the foot of the operating table

Note: The anesthesiologist is usually in charge of the move, and counts "1-2-3" at which time the patient is moved.
- ☐ 8. In collaboration with other personnel, gently and safely transfer the patient from the operating table to the stretcher.

Note: A drawsheet or a roller eases the transfer process and is often required depending on the size and condition of the patient and the precautions indicated by the type of surgery performed.
- ☐ 9. Check patient for proper body alignment and positioning on the stretcher.
- ☐ 10. Raise side rails on stretcher.
- ☐ 11. Fasten restraining strap on stretcher (loose, but secure).
- ☐ 12. Unlock stretcher wheels.
- ☐ 13. Move stretcher to recovery room following the safety rules outlined in this unit's information sheet.
- ☐ 14. Transfer the care of the patient to the recovery room nurse.

Evaluator's comments: _____

Positioning, Prepping, and Draping

Unit 2-B

Objective Sheet

Unit Objective

After completing this unit, the student should be able to identify surgical positions and drapes, complete statements concerning guidelines for positioning, prepping, and draping a patient, and be able to position, prep, and drape a patient for various surgical procedures. The student should demonstrate these competencies by completing the assignment sheets and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Describe the three basic surgical positions.
2. Match equipment and supplies used in positioning with the correct uses.
3. Identify the basic surgical positions and their variations.
4. Match the surgical positions with the correct uses.
5. Complete statements concerning qualities of good positioning.
6. Complete statements concerning guidelines for positioning a patient.
7. State the purpose of prepping.
8. Select true statements concerning procedures involved in prepping.
9. Match types of antiseptic agents used for OR skin preps with the correct descriptions.
10. State the purpose of draping.
11. List three types of draping materials.
12. Identify types of drapes.
13. Select true statements concerning guidelines for draping.
14. State positions commonly used for various surgical procedures. (Assignment Sheet 1)

Objective Sheet

15. Define the limits for preps on various surgeries. (Assignment Sheet 2)
16. Solve problems for given draping situations. (Assignment Sheet 3)
17. Position patient in the supine position and its variations. (Job Sheet 1)
18. Position patient in the prone position and its variation. (Job Sheet 2)
19. Position patient in the lateral position and its variation. (Job Sheet 3)
20. Prep patient's skin for abdominal surgery. (Job Sheet 4)
21. Prep patient's skin for vaginal surgery. (Job Sheet 5)
22. Prep patient's skin for surgery on an extremity. (Job Sheet 6)
23. Drape patient for a laparotomy. (Job Sheet 7)
24. Drape patient for vaginal surgery. (Job Sheet 8)
25. Drape patient for surgery on an extremity (leg). (Job Sheet 9)
26. Drape a Mayo stand. (Job Sheet 10)
27. Connect suction to the field. (Job Sheet 11)

Positioning, Prepping, and Draping

Unit 2-B

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:
 - TM 1—Surgical Positions (Objective 3)
 - TM 2—Surgical Positions (Continued) (Objective 3)
 - TM 3—Surgical Positions (Continued) (Objective 3)
 - TM 4—Surgical Positions (Continued) (Objective 3)
 - TM 5—Types of Drapes (Objective 12)
 - TM 6—Types of Drapes (Continued) (Objective 12)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.

Suggested Activities

11. Discuss the student supplement. This could be used as a homework assignment, practice exercise, or quiz. Explain to students how you plan to evaluate the supplement, if at all.
12. Discuss the assignment sheets. Review criteria for evaluation of these activities.
13. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

14. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
15. Make copies of the written test. Add or modify test items as needed.
16. Give written test.
17. Compile assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
18. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Demonstrate the use of the OR table and its attachments for positioning the patient. **Adaptability skills**
2. Discuss the positions which present special problems to the patient. **Critical thinking skills**
3. Discuss who is responsible in your local hospitals for positioning, prepping, and draping, and the surgical technologist's role in each. **Creative thinking skills**
4. Demonstrate the procedure for a shave prep if your students will need to perform this task in local hospitals.
5. Provide examples of various prepping and painting solutions and discuss their advantages and disadvantages.

Suggested Activities

6. Discuss the skin areas that are prepped for various surgical procedures. Charts and/or handouts showing these skin areas may be available from manufacturers of surgical prep solutions or area hospitals. Contact the following manufacturer of Betadine® for more information:

The Purdue Frederick Company
100 Connecticut
Norwalk, CT 06850-3590
203-853-0123

7. Show videos dealing with prepping, positioning, and draping. **Communications skills, motivation**
8. Provide examples of various drapes, and discuss the following:
 - a. Types of materials available
 - b. Their uses
 - c. The procedure for disposing of them if disposable or sterilizing them if reusable
 - d. The manner in which they are folded and marked

Demonstrations of supplies can be very important in helping students learn practical application of theory concepts.

8. Discuss types of packs available locally and what is included in each.
9. You may wish to add other job sheets for additional positions or draping. You may also want to delete those job sheets dealing with prepping if your students are not required to prep. Demonstrations of procedures can be very important in helping students learn practical application of theory concepts.

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nurses, Inc., 1993.
2. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, 1992.
3. Fuller, Joanna. *Surgical Technology: Principles and Practice*. Philadelphia: W. B. Saunders Co., 1986.
4. Kneeder, Julia A. *Perioperative Patient Care*. Jones and Bartlett, 1991.

Suggested Activities

5. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.
6. Spry, Cynthia. *Essentials of Perioperative Nursing*. Aspen Publishers, Inc., 1988.

Suggested Supplemental Resources

1. *Positioning the Surgical Patient*, DG-1406. 25-minute film
2. *Preoperative Skin Preparation of the Surgical Patient*, DG-1302. 20-minute film
3. *Concepts of Surgical Draping*

1 - 3 are available from:

Cine-Med Distribution Center
Davis + Geck Video Library
PO Box 745
Woodbury, CT 06898
800-633-0004

4. *Ioban TM 2 C-Section Surgical Drapes*
5. *6619 Ioban TM 2 Patient Isolation System*
6. *Keeping Infection Control Well in Hand*
7. *1607 Steri-Drape TM U-pouch Shoulder Drape*
8. *3M Ophthalmic Drapes: A Commitment to Excellence*
9. *The Challenge: Managing Wound Infection Following Open Heart Surgery*
10. *3M Surgical Clipper*

4 - 10 are available from:

3M Health Care
c/o Computer Chrome, Inc.
2610 University Ave.
St. Paul, MN 55114
800-328-4827, Ext. 1205

Suggested Activities

11. *Surgical Skin Preparation*, M053. 17-minute video
12. *Preparing and Maintaining the Sterile Field*, M054. 27-minute video
13. *Positioning the Surgical Patient*, M055. 27-minute video

11 - 13 are available from:

Medcom/Trainex
PO Box 3225
Garden Cove, CA 92641
800-877-1443 or 714-891-1443

14. *Draping the Surgical Patient*, #392-V. 21-minute video with study guide. Developed by Johnson & Johnson Medical Inc. Available from:

AD/COM, INC.
2003 Lamar Blvd., East
Arlington, TX 76006
800-486-8247

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Suggested Activities

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

**Positioning, Prepping, and Draping
Unit 2-B**

Answers to Student Supplement 1

1. c
2. b
3. b
4. a
5. c
6. b
7. c
8. a
9. d
10. d

Positioning, Prepping, and Draping Unit 2-B

Answers to Assignment Sheets

Assignment Sheet 1

Note: Answers may vary from these listed. Evaluate on an individual basis for answers that vary.

1. Supine
2. Modified supine
3. Lateral chest
4. Supine (or modified supine with slight Trendelenburg)
5. Prone
6. Reverse Trendelenburg
7. Supine
8. Lithotomy
9. Kraske (or lithotomy)
10. Lateral kidney
11. Kraske
12. Modified supine
13. Supine
14. Lithotomy
15. Trendelenburg

Assignment Sheet 2

1. Abdominal surgery

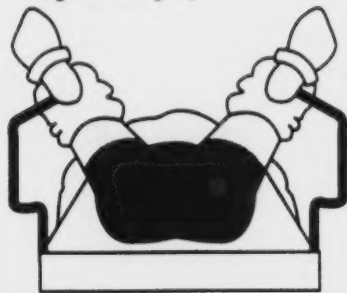


2. Right forearm, elbow, and hand surgery

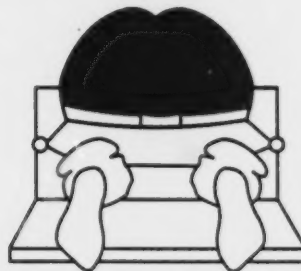


Answers to Assignment Sheets

3. Vaginal surgery



4. Rectal surgery



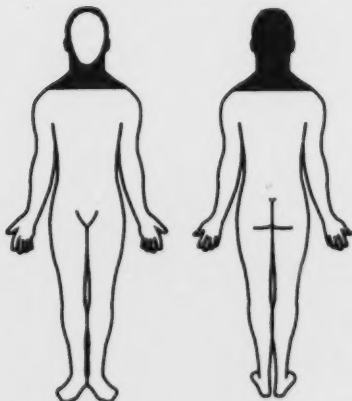
5. Left ankle, foot, or toe surgery



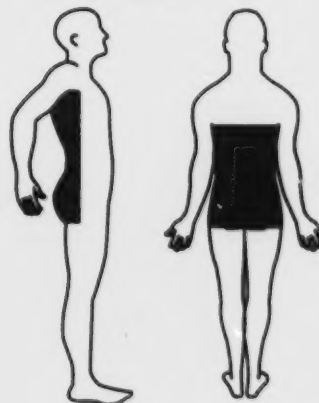
6. Left lower leg and foot surgery



7. Head surgery



8. Back surgery (lumbar laminectomy)

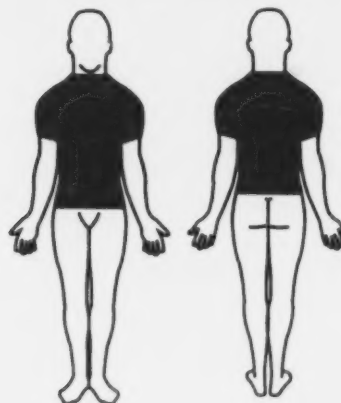


Answers to Assignment Sheets

9. Right shoulder surgery



10. Thoracic-abdominal surgery



Assignment Sheet 3

1. The hole must be covered with another non-absorbent drape or the entire drape discarded.
2. The hair should be removed using a hemostat and handed off the sterile field. Cover the area with a non-absorbent towel or drape sheet.
3. Once a sheet is placed, it should not be adjusted. If the drape is placed incorrectly, it should be discarded. The circulator peels the drape from the table without contaminating other drapes or the operative site.
4. If a drape becomes contaminated, drop it and obtain another.
5. The points of a towel clip which have been fastened through a drape are contaminated. If the towel clip is removed, it should be discarded from the sterile field, and the area from where it was removed covered with a non-absorbent towel or drape.

Positioning, Prepping, and Draping Unit 2-B

Answers to Written Test

1.
 - a. Supine—Patient on back
 - b. ~~Prone~~—Patient on stomach
 - c. Lateral—Patient on side

2.

a.	5	d.	8	g.	6
b.	7	e.	3	h.	1
c.	2	f.	9		

3.
 - a. Reverse Trendelenburg
 - b. Kraske (jackknife)
 - c. Prone
 - d. Trendelenburg
 - e. Lateral kidney
 - f. Lithotomy
 - g. Supine

4.

a.	4	d.	6	g.	7
b.	8	e.	9	h.	2
c.	1	f.	3		

5.
 - a. Operative site
 - b. Circulation or respiration
 - c. Nerves
 - d. Safety

6.
 - a. Surgeon
 - b. Surgeon's preference cards
 - c. Circulator
 - d. At times
 - e. Age
 - f. Anesthesiologist
 - g. Blood vessels
 - h. Slowly
 - i. Chest
 - j. Circulation
 - k. After
 - l. Within
 - m. 90°
 - n. Brachial
 - o. Elbow
 - p. Peroneal
 - q. Simultaneously

Answers to Written Test

7. To make the operative site as free from microorganisms and dirt as possible

8. a. F e. F i. T m. F
 b. T f. T j. F n. T
 c. T g. F k. F
 d. F h. T l. T

9. a. 4
 b. 5
 c. 1
 d. 3

10. To create and maintain a sterile field by covering the patient and surrounding areas with sterile barriers

11. a. Plastic with complete or partial adhesive backing
 b. Nonwoven, disposable (paper)
 c. Woven, reusable (cloth)

12. a. Stockinet
 b. Towels
 c. Split sheet
 d. Fenestrated sheet
 e. Plain sheet

13. a. T e. T i. F m. T
 b. F f. F j. T n. F
 c. T g. F k. T
 d. F h. T l. T

Positioning, Prepping, and Draping Unit 2-B

Written Test

Name _____ Score _____

1. Describe the three basic surgical positions. State both the name of the position and how the patient is lying.

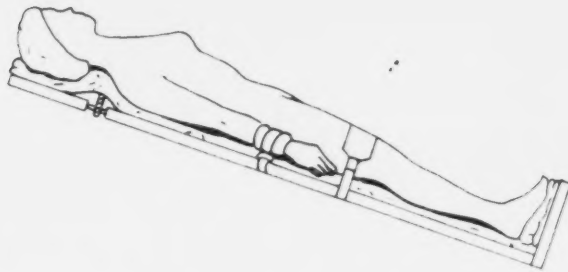
- a. _____
b. _____
c. _____

2. Match the equipment and supplies used in positioning on the right with the correct uses.

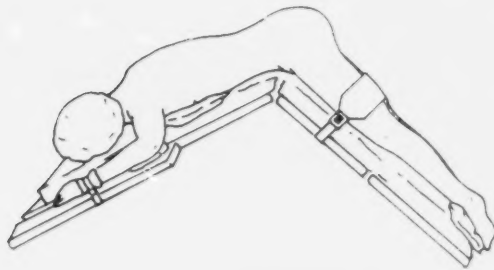
- | | |
|--|--|
| _____ a. Used to support the arm when giving intravenous infusions | 1. Padded body and kidney rest |
| _____ b. Raise and support the legs in lithotomy position | 2. Pillows, doughnuts, headrests, wrist straps, and sandbags |
| _____ c. Used for additional immobilization and support | 3. Drawsheet |
| _____ d. Used to secure patient during all inductions and most positions except lithotomy | 4. Footboard |
| _____ e. Used as an arm restraint, and used to support and lift the body during transfer to a stretcher | 5. Armboard |
| _____ f. Holds drapes off the patient's face, and separates nonsterile area from sterile field | 6. Operating room table |
| _____ g. Used to achieve any desired position through manual or electrical controls; accepts attachments | 7. Stirrups |
| _____ h. Used to stabilize the body in lateral kidney positions | 8. Safety belt (knee strap) |
| | 9. Anesthesia screen |

Written Test

3. Identify the following basic surgical positions and their variations.



a. _____

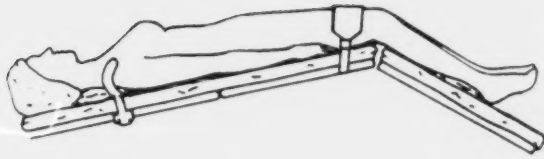


b. _____

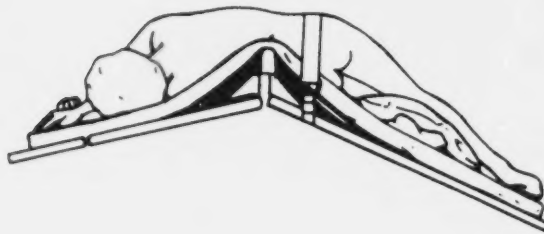


c. _____

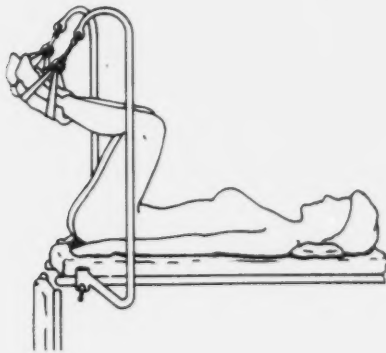
Written Test



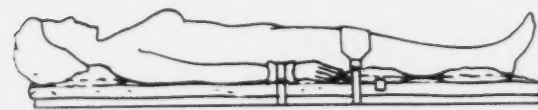
d. _____



e. _____



f. _____



g. _____

Written Test

4. Match the surgical positions on the right with the correct uses.

- | | | |
|----------|---|--------------------------|
| _____ a. | Used for neurosurgical and some otorhinology procedures | 1. Kraske |
| _____ b. | Used for thoracic procedures when a lateral approach is desired by surgeon | 2. Prone |
| _____ c. | Used for rectal procedures | 3. Supine |
| _____ d. | Used for procedures on the kidney and distal ureter and for colonoscopies | 4. Sitting |
| _____ e. | Used for lower abdominal and pelvic procedures when surgeon wants abdominal contents to be separated from pelvic contents | 5. Reverse Trendelenburg |
| _____ f. | Used for abdominal and abdomino-thoracic procedures, as well as some lower extremity procedures | 6. Lateral kidney |
| _____ g. | Used for vaginal, perineal, and rectal procedures | 7. Lithotomy |
| _____ h. | Used for procedures on the posterior surface of the body | 8. Lateral chest |
| | | 9. Trendelenburg |

5. Complete the following statements concerning qualities of good positioning by correctly filling in the blanks.

- a. Makes _____ prominent and accessible
- b. Does not interfere with _____
- c. Does not put any pressure on any _____ or bony prominences
- d. Allows maximum _____ and comfort for the patient

Written Test

6. Complete the following statements concerning guidelines for positioning a patient by circling the correct words.
- a. The (anesthesiologist, surgeon) decides on the position to be used.
 - b. The positions for various procedures will be recorded on the (surgeon's preference cards, OR surgery schedule).
 - c. The (surgical technologist, circulator) is primarily responsible for positioning the patient.
 - d. The surgeon, anesthesiologist, or surgeon's assistant will (never, at times, always) assist with the positioning of the patient.
 - e. The proper time to position a patient depends on the type of surgery, (age, sex) and size of patient, type of anesthetic, and whether or not the patient has pain on moving.
 - f. The patient is not moved until the (OR supervisor, anesthesiologist) gives permission.
 - g. Pillows and other padding are used in strategic places to prevent pressure on nerves and (the heart, blood vessels).
 - h. Patients who are already anesthetized must be positioned (slowly, quickly).
 - i. Excessive pressure on the (abdomen, chest) must be avoided to prevent respiratory impairments such as hypoxia.
 - j. The patient's legs must not be crossed since it would impair (circulation, respiration).
 - k. Extreme or embarrassing positioning should be done (before, after) the patient is anesthetized.
 - l. Movement of joints must be gentle and (beyond, within) their limited range of motion to avoid damage and pain.
 - m. Avoid hyperextension of the arm—no more than (20°, 70°, 90°).
 - n. Extreme positions of the head and arm can cause injury to the (cervical, solar, brachial) plexus.
 - o. Radial, median, or ulnar nerve damage can occur if extreme care is not used in supporting the (elbow, knee) region.

Written Test

- p. Stirrups that are inadequately padded or improperly placed can cause pressure on the (iliac, peroneal) nerve, which can produce foot drop if the damage is severe.
- q. The legs should be raised and lowered slowly and (one at a time, simultaneously).
7. State the purpose of prepping.
- _____
- _____
8. Select true statements concerning procedures involved in prepping by placing a "T" or "F" next to the true or false statements.
- _____ a. The patient should not bathe or shower prior to coming to the OR because it will just release more microorganisms into the air.
- _____ b. The hair from an operative site is commonly removed immediately prior to surgery by shaving or using a hair removal (depilatory) cream.
- _____ c. Hair removal may injure the patient's skin, providing a source of entry for microorganisms and a source of infection.
- _____ d. Hair removal is carried out by nursing personnel the day before surgery.
- _____ e. Eyebrows are routinely shaved for face surgery.
- _____ f. Nicks or cuts should be reported as incidents, and the surgeon notified.
- _____ g. A basic rule of prepping is "proceed from dirty to clean".
- _____ h. Using a sterile prep set, the circulator dons sterile gloves and cleanses the operative site with an antiseptic agent prior to the draping.
- _____ i. The skin is scrubbed from the proposed incision site in a circular direction gradually working to the outer edges.
- _____ j. The skin prep should be carried on for at least 20 minutes.
- _____ k. When the prep area contains an open wound or a body orifice, those areas will be scrubbed first.
- _____ l. Contaminated areas such as the umbilicus should be scrubbed with separate sponges.

Written Test

- _____ m. Contaminated wounds should not be irrigated because it will embed the debris deep in the wound.
- _____ n. Solutions must not be allowed to pool under the patient since this can lead to burns.
9. Match types of antiseptic agents used for OR skin preps on the right with the correct descriptions.
- | | |
|---|-----------------------------------|
| _____ a. Develops a cumulative action after a period of frequent use; therefore, is only used on patients who have washed exclusively for several days with this product. Is neutralized by alcohol | 1. Iodophor |
| _____ b. Are flammable; therefore, they must be used in small quantities and must not be allowed to pool around or under patients, especially when lasers or electrosurgical units are used | 2. Iodine |
| _____ c. Is a complex of iodine and detergent; is non-irritating to skin and mucous membranes; slowly releases 1% iodine for residual effect | 3. Chlorhexidine gluconate |
| _____ d. Is a good alternative for those allergic to iodophor; has a residual effect for at least 4 hours | 4. Hexachlorophene |
| | 5. Alcohols (isopropyl and ethyl) |

10. State the purpose of draping.

11. List three types of draping materials.

a. _____

b. _____

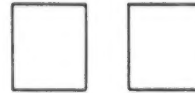
c. _____

Written Test

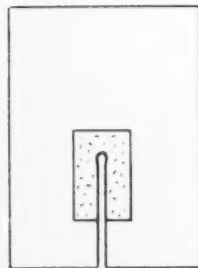
12. Identify the following types of drapes.



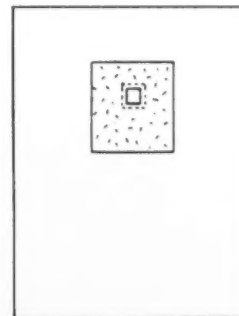
a. _____



b. _____



c. _____



d. _____



e. _____

Written Test

13. Select true statements concerning guidelines for draping by placing a "T" or "F" next to the true or false statements.

- _____ a. Sterile technique is used throughout the draping procedure.
- _____ b. The anesthesiologist usually places the towels and towel clips to outline the incision site.
- _____ c. The circulator should observe for breaks in technique during draping procedure.
- _____ d. Drapes must not be placed on dry areas.
- _____ e. Excess handling of drapes should be avoided.
- _____ f. Draping is done from an unsterile area to a sterile area.
- _____ g. The incision site is draped after the adjacent areas are draped.
- _____ h. When draping, sterile person should stand back from the unsterile table.
- _____ i. Drapes should be held high enough to avoid touching sterile areas.
- _____ j. Once a drape is placed, it must not be adjusted.
- _____ k. Gloved hands are protected while draping by cuffing the end of the drape over them to prevent its contact with the surface being draped.
- _____ l. If a drape becomes contaminated, discard it without contaminating gloves or other articles.
- _____ m. If a drape falls below waist level, it is considered contaminated and is not used.
- _____ n. The points of the towel clip that has been fastened through a drape are sterile.

Positioning, Prepping, and Draping
Unit 2-B

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—State Positions Commonly Used for
Various Surgical Procedures Rating _____

Comments: _____

Assignment Sheet 2—Define the Limits for Preps
on Various Surgeries Rating _____

Comments: _____

Assignment Sheet 3—Solve Problems for Given
Draping Situations Rating _____

Comments: _____

Job Sheet 1—Position Patient in the Supine
Position and Its Variations Rating _____

Comments: _____

Job Sheet 2—Position Patient in the Prone
Position and Its Variation Rating _____

Comments: _____

Unit Evaluation Form

Job Sheet 3—Position Patient in the Lateral
Position and Its Variation

Rating _____

Comments: _____

Job Sheet 4—Prep Patient's Skin for Abdominal Surgery

Rating _____

Comments: _____

Job Sheet 5—Prep Patient's Skin for Vaginal Surgery

Rating _____

Comments: _____

Job Sheet 6—Prep Patient's Skin for Surgery
on an Extremity

Rating _____

Comments: _____

Job Sheet 7—Drape Patient for a Laparotomy

Rating _____

Comments: _____

Job Sheet 8—Drape Patient for Vaginal Surgery

Rating _____

Comments: _____

Job Sheet 9—Drape Patient for Surgery on an Extremity (Leg)

Rating _____

Comments: _____

Unit Evaluation Form

Job Sheet 10—Drape a Mayo Stand

Rating _____

Comments: _____

Job Sheet 11—Connect Suction to the Field

Rating _____

Comments: _____

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____

Date _____

Student Signature _____

Date _____

*Permission to duplicate this form is granted.

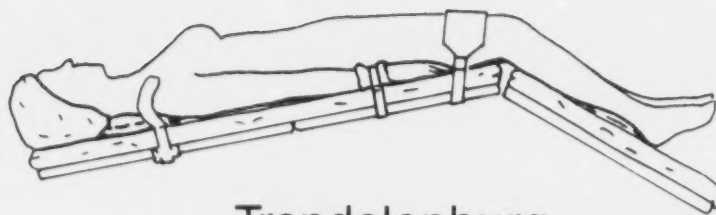
343

Surgical Positions

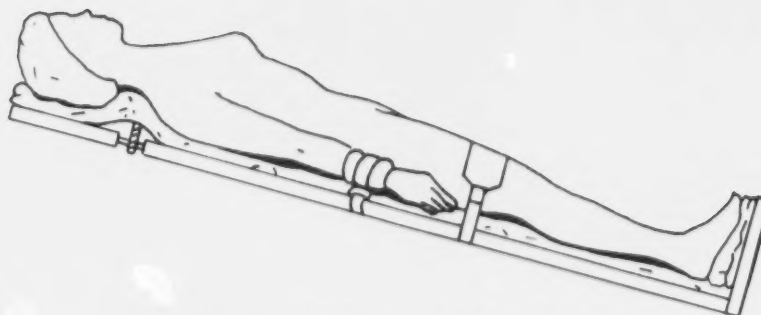
Supine and Its Variations



Supine



Trendelenburg

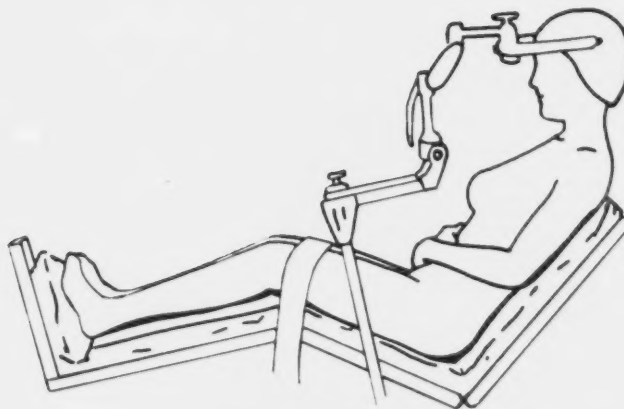


Reverse Trendelenburg

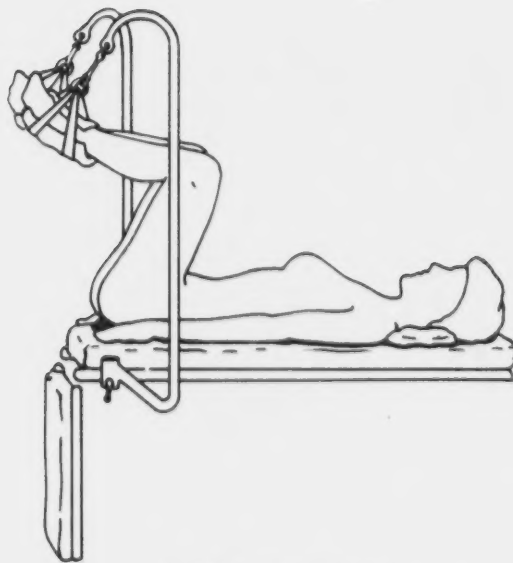
Surgical Positions

(Continued)

Other Variations of Supine



Sitting

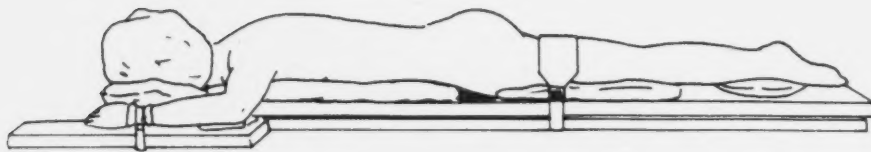


Lithotomy

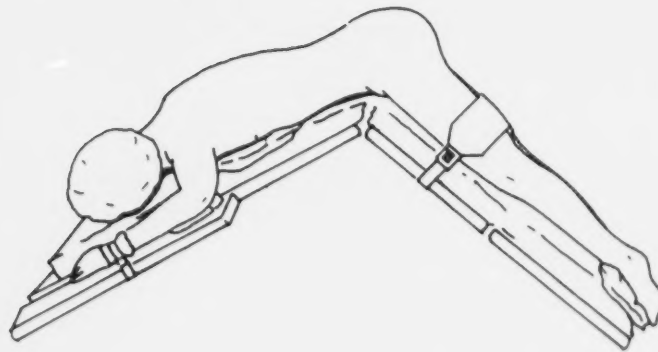
Surgical Positions

(Continued)

Prone and its Common Variation



Prone



Kraske

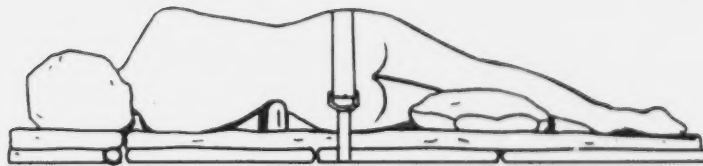
346

Surgical Positions (Continued)

Lateral and its Common Variation



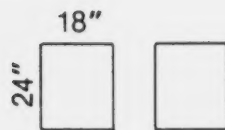
Lateral Kidney



Lateral Chest

347

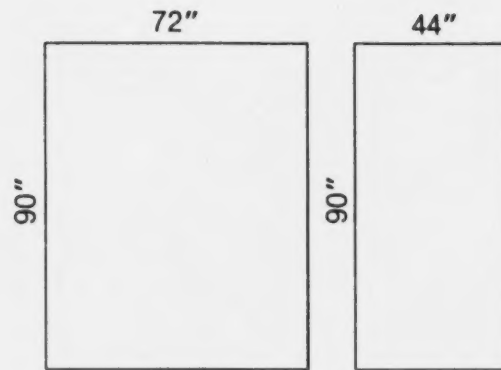
Types of Drapes



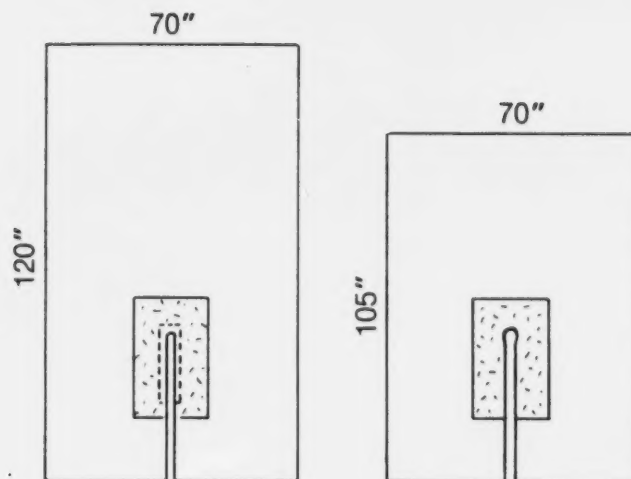
Towels



Stockinet



Plain Sheets



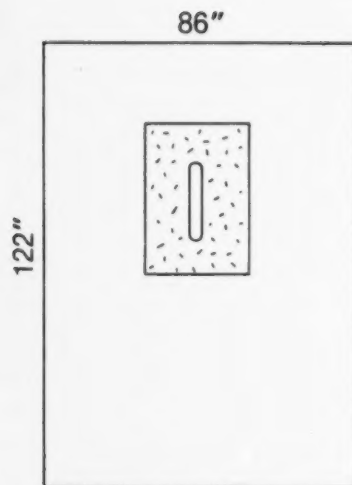
Split Sheets

343

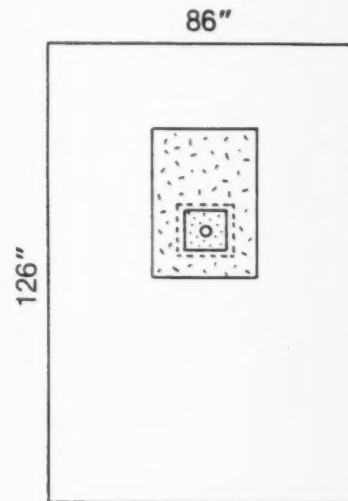
Types of Drapes

(Continued)

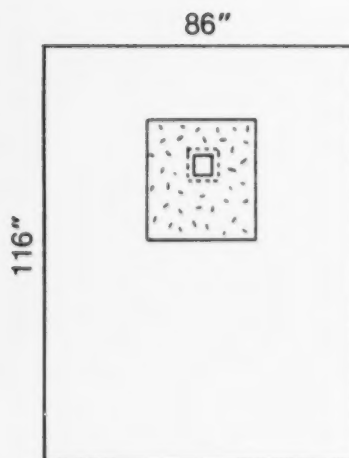
Fenestrated Sheets



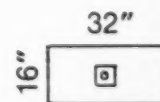
Laparotomy
Sheet



Extremity
Sheet



Head and Neck
Sheet



Eye Drape

347

Positioning, Prepping, and Draping Unit 2-B

Information Sheet

1. Three basic surgical positions

- a. Supine — Patient on back
- b. Prone — Patient on stomach
- c. Lateral — Patient on side

Note: These basic positions can be modified into many variations which are used to better serve the patient or the surgical team for various procedures.

2. Equipment and supplies used in positioning

- a. **Operating room table** — Used to achieve any desired position through manual or electrical controls; accepts attachments
- b. **Safety belt (knee strap)** — Used to secure patient during all inductions and most positions except lithotomy
- c. **Anesthesia screen** — Holds drapes off the patient's face, and separates nonsterile area from sterile field

Note: If the anesthesia screen is used, it is usually placed on the OR table **after** induction and positioning of the patient.

- d. **Drawsheet (patient lifter or armholder)**
 - (1) Used as an arm restraint
 - (2) Used to support and lift the body during transfer to a stretcher
- e. **Armboard** — Used to support the arm
 - (1) When giving intravenous infusions
 - (2) When the site of operation is the arm or hand
 - (3) When the arm would be in the way of the operative area
 - (4) For a very obese patient when there is no space on the table beside the patient
 - (5) To support the arm on the unaffected side in lateral position

Information Sheet

- f. **Padded body and kidney rest** — Used to stabilize the body in lateral kidney positions
- g. **Footboard**
 - (1) Used as a horizontal extension of the table
 - (2) Can be raised perpendicular to the table to support the feet in reverse Trendelenburg position
 - (3) May be used as a shelf on foot portion of table which has been lowered 90° for vaginal procedures
- h. **Stirrups or lithotomy leg holders** — Raise and support the legs in lithotomy position
- i. **Pillows, doughnuts, headrests, wrist straps, and sandbags** — Used for additional immobilization and support

3. Basic surgical positions and their variations

a. Supine

- (1) Basic supine (dorsal)

Figure 1



- (a) Patient lies on back with face upward.
- (b) Arms are placed along side of body with palms pronated.
- (c) Legs are straight and parallel, in line with head and spine.
- (d) Feet are slightly separated and supported by a pillow or padded board.
- (e) Restraint strap is placed across the middle to upper thighs 2" above the knees.
- (f) The patient's knees are over the break in the operating table.

Information Sheet

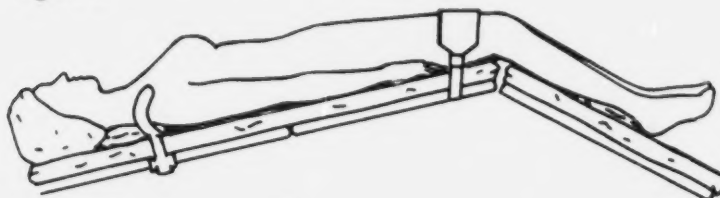
(2) Modified supine

Note: There are several modified supine positions commonly used in surgery. The following are examples of ways the basic supine position can be modified. Any variation from basic supine in which the table remains flat is called modified supine.

- (a) Same as supine, but head is rotated
- (b) Same as supine, but shoulder is elevated
- (c) Same as supine, but knees are flexed and thighs are externally rotated (called dorsal recumbent)
- (d) Same as supine, but knees are **slightly** flexed and thighs are externally rotated (called modified recumbent)
- (e) Same as supine, but arm(s) are extended on armboard(s)

(3) Trendelenburg

Figure 2

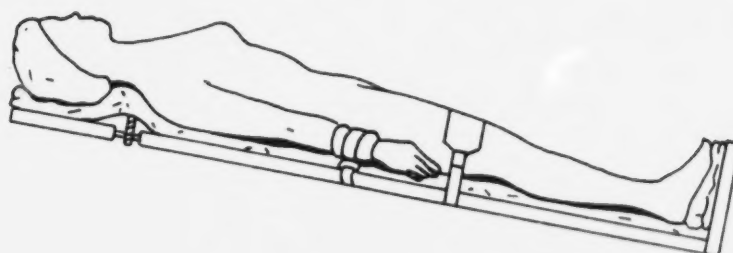


- (a) Patient lies on back with face upward.
- (b) Knees are positioned over the lower break in the table.
- (c) Restraint strap is placed across the middle to upper thighs 2" above the knees.
- (d) Shoulder braces are usually used.
- (e) Entire table is placed in an approximately 20° slant with head downward. Then foot section is dropped approximately 45°. This may necessitate elevating the Mayo stand.

Information Sheet

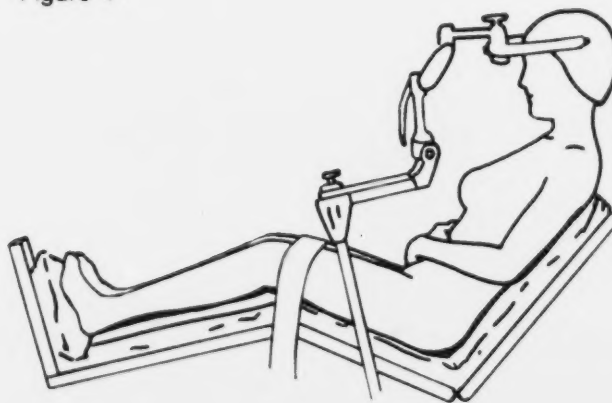
(4) Reverse Trendelenburg

Figure 3



- (a) Patient lies on back with face upward.
 - (b) Padded footboard is commonly used.
 - (c) Entire table is tilted so head end is higher than foot end.
 - (d) Operative area is usually elevated.
- (5) Sitting (Fowler's position)

Figure 4

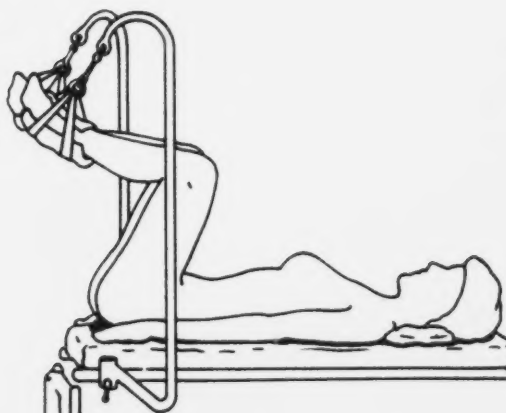


- (a) Patient lies on back with knees over knee break in table.
- (b) Table is moved into a chair-like position with angle between head end and body section between 45° and 90°.
- (c) Restraint straps may be used to support the upper body.
- (d) Arms rest on pillow on lap or arm attachment.

Information Sheet

(6) Lithotomy

Figure 5



- (a) Patient lies on back.
- (b) Patient's buttocks rest along break between body and leg sections of table.
- (c) Patient's legs are placed in stirrups.
- (d) Leg section of table is lowered 90°.

Note: The buttocks may have to be repositioned so that they are even with the table edge. A footboard may, in some cases, be added to lower end of the leg section to be used as a shelf.

Information Sheet

b. Prone

Note: The patient is usually anesthetized in the supine position before being rolled into another position.

(1) Basic prone

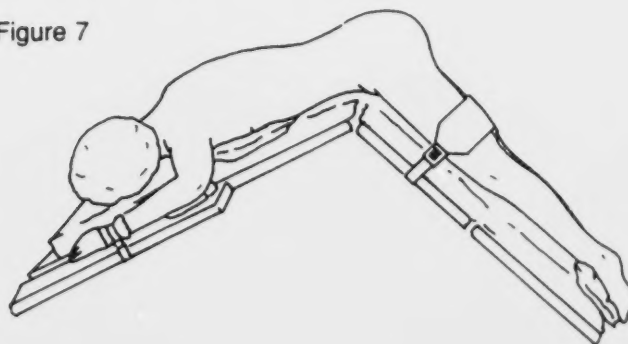
Figure 6



- (a) Patient lies on abdomen with face turned to side.
- (b) Shoulders and sides of chest may be elevated with bolsters or chest rolls to facilitate respiration.
- (c) Safety restraint strap is placed across the middle to upper thighs 2" above the knees as defined by hospital policy.
- (d) Arms are supported at sides of body, raised above head, or placed on armboards.
- (e) Ankles and feet may be supported by padding or a pillow which prevents pressure on toes.

(2) Kraske (jackknife)

Figure 7



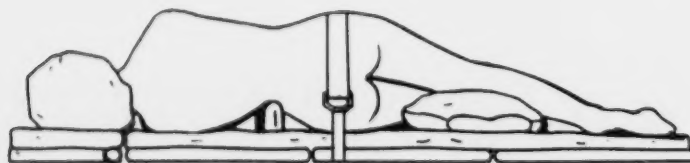
Information Sheet

- (a) Patient lies on abdomen with face turned to side.
- (b) Head is supported by donut or pillow.
- (c) Shoulders and sides of chest are raised using chest rolls or bolsters to facilitate respiration.
- (d) Hips are placed over center table break.
- (e) Safety restraint strap is placed across the middle to upper thighs 2" above the knees as defined by hospital policy.
- (f) Arms are supported on armboards.
- (g) Feet and toes are supported by a pillow.
- (h) Table is broken at center with both ends tilted downward to form approximately a 90° angle.

c. Lateral

- (1) Lateral chest

Figure 8



- (a) Patient lies on unaffected side.
- (b) Lower leg is flexed, upper leg is straight, and large pillow is placed between them.
- (c) One body rest is placed at lumbar area, another one at chest axillary area.
- (d) Arms are supported on double armboards or similar arrangement.
- (e) Safety restraint straps or wide tape is placed over hip and knees.

Information Sheet

(2) Lateral kidney

Figure 9



- (a) Patient lies on unaffected side.
- (b) Lower leg is flexed, upper leg is straight, and a large pillow is placed between them.
- (c) Short kidney rest may be attached to table at patient's back, and a long kidney rest may be attached at the front.
- (d) Arms may be supported on double armboards.
- (e) Kidney elevator is used so that area between twelfth rib and iliac crest is raised.
- (f) Table is flexed to lower head and foot section.
- (g) Safety restraint straps or wide tape is placed over hip and knees.

Note: The entire table may be tilted downward so the operating area is horizontal.

4. Uses of surgical positions

- a. **Supine** — Used for abdominal and abdomino-thoracic procedures, as well as some lower extremity procedures

Note: Modified supine positions are used for various procedures.

- b. **Trendelenburg** — Used for lower abdominal and pelvic procedures when surgeon wants abdominal contents to be separated from pelvic contents
- c. **Reverse Trendelenburg** — Used for thyroid procedures, possibly for biliary tract procedures, and for some ENT procedures such as on the nose
- d. **Sitting** — Used for neurosurgical and some otorhinology procedures

Information Sheet

- e. **Lithotomy** — Used for vaginal, perineal, and rectal procedures
- f. **Prone** — Used for procedures on the posterior surface of the body
- g. **Kraske** — Used for rectal procedures
- h. **Lateral kidney** — Used for procedures on the kidney and distal ureter and for colonoscopies
- i. **Lateral chest** — Used for thoracic procedures when a lateral approach is desired by surgeon

5. Qualities of good positioning

- a. Makes operative site prominent and accessible
- b. Does not interfere with circulation to any part
- c. Does not interfere with respiration
- d. Does not put any pressure on any nerves or bony prominences
- e. Allows maximum safety and comfort for the patient

6. Guidelines for positioning a patient

- a. The surgeon decides on the position to be used based on the diagnosis with allowances made for anesthesia administration.
- b. The surgeon's selected positions for various procedures will be recorded on the surgeon's preference cards.

Note: If the position is not written on the preference cards, the surgeon will be asked by the circulator what position is preferred. Direct communication is very important.

- c. The circulator is primarily responsible for positioning the patient.
- d. The surgeon, anesthesiologist, or surgeon's assistant will at times assist with the positioning of the patient.

Note: This is especially true for complex positions or when the patient is in traction or has an unsplinted fracture.

Information Sheet

- e. The proper time to position a patient depends on the type of surgery, age and size of patient, type of anesthetic, and whether or not the patient has pain on moving.

Note: When patients require supine position, they usually are positioned and then anesthetized. However, patients scheduled for back surgery will be anesthetized and then positioned, as are infants who will move out of position if not anesthetized first. For surgeries with multiple stages, the patient may need to be repositioned.

- f. The patient is not moved until the anesthesiologist gives permission.
- g. Pillows and other padding are used in strategic places, especially bony prominences, to prevent pressure on nerves and blood vessels.

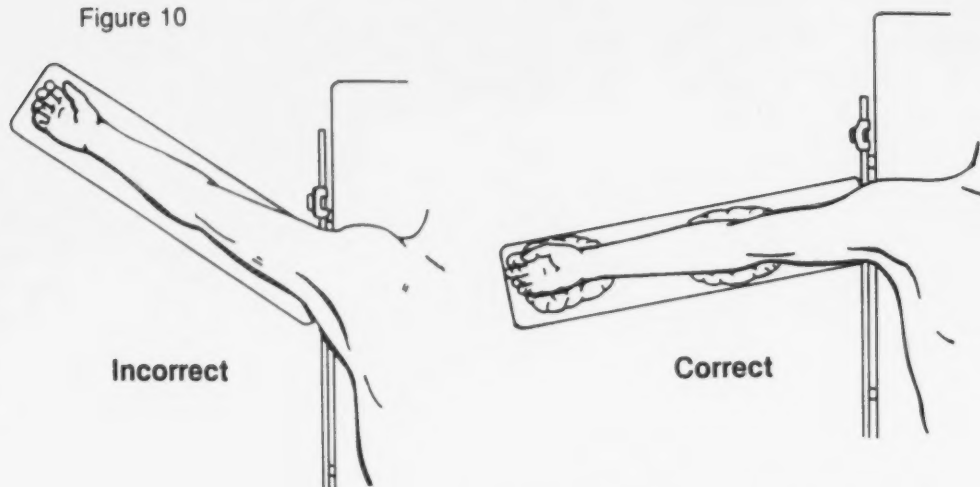
Note: Elbows, shoulders, knees, toes, heels, and fingers are especially prone to pressure damage.

- h. Patient tubings such as IVs and catheters must not be obstructed.
- i. Patients who are already anesthetized must be positioned slowly and carefully to allow their circulatory system time to adjust.
- j. Excessive pressure on the chest must be avoided to prevent respiratory impairments such as hypoxia.
- k. The patient's legs must not be crossed since it would impair circulation.
- l. Extreme or embarrassing positioning should be done after the patient is anesthetized.
- m. Undue exposure of the patient should be avoided.
- n. Movement of joints must be gentle and within their limited range of motion to avoid damage and pain.

Information Sheet

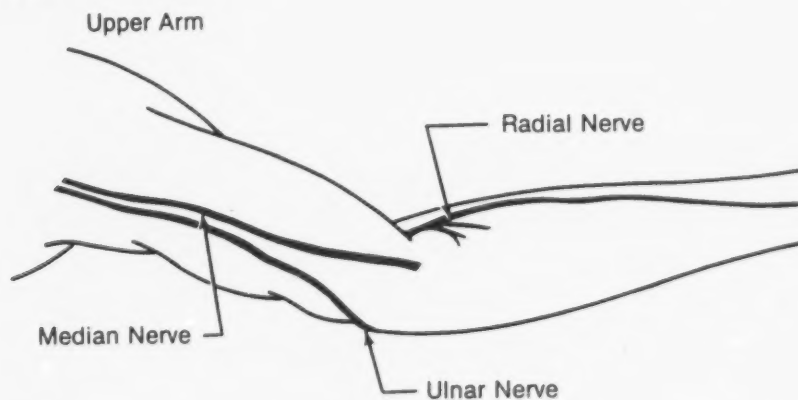
- o. When using armboards, avoid hyperextension of the arm—no more than 90°.

Figure 10



- p. Position the palms up when supine to prevent pressure on the ulnar nerve.
- q. Radial, median, or ulnar nerve damage can occur if extreme care is not used in supporting the elbow region.

Figure 11

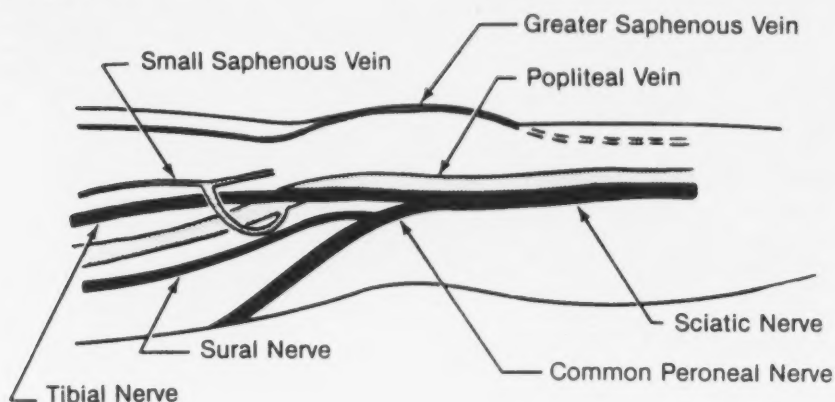


- r. Extreme positions of the head and arm can cause injury to the brachial plexus.

Information Sheet

- s. Stirrups that are inadequately padded or improperly placed can cause pressure on the peroneal nerve, which can produce foot drop if the damage is severe.

Figure 12



- t. The legs should be raised simultaneously by two people when placing them in stirrups to avoid dislocation of hip.
- u. The stirrup height is adjusted according to the length of the patient's legs.
- v. Both stirrups are elevated to an equal height.
- w. After surgery, the legs in stirrups should be brought together and lowered very **slowly** and **simultaneously**, over a period of not less than two (2) minutes to avoid a sudden drop in blood pressure.
- x. Each patient is treated individually, and adjustments in positioning are made according to the patient's size, age, and physical state.

Examples: A patient's physical defect may require a modification from a standard position. Excessively thin patients require more padding to prevent circulatory and nerve difficulties.

7. **Purpose of prepping** — To make the operative site as free from microorganisms and dirt as possible

Information Sheet**8. Procedures involved in prepping**

a. **Bathing** — Before coming to the OR, the patient will bathe or shower using bacteriostatic soap designed for skin use.

b. **Hair removal**

- (1) The hair from an operative site is commonly removed since it can harbor microorganisms.
- (2) The area to be shaved is determined by the site of the incision and nature of the operation.
 - (a) Eyebrows are not shaved unless specifically ordered by the physician.
 - (b) Preparation for head and neck surgery may be done in the operating room after the induction of anesthesia for psychological reasons.
 - (c) Skin preparation for patient's with severe traumatic wounds may be done after the induction of anesthesia.
 - (d) Nicks or cuts should be reported as incidents and the surgeon notified.
- (3) The hair is removed by shaving or using a hair removal (depilatory) cream.
 - (a) A disadvantage of shaving is the possibility of breaking the skin surface.
 - (b) A disadvantage of cream may be the patient's sensitivity to the chemicals used.

Note: For some procedures, the hair may only be clipped.

- (4) Injuries to the patient's skin may occur during hair removal. Nicks and cuts provide a source of entry for microorganisms and a source of infection.
- (5) Hair removal is carried out by nursing personnel as close to the time of surgery as possible, either in the preoperative unit or in the OR suite.

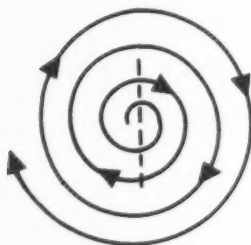
Caution: Hair must be contained to prevent contamination.
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Information Sheet

c. **OR skin prep**

- (1) A basic rule of prepping is "proceed from clean to dirty."
- (2) Patient preparation includes exposing only the skin area to be prepared by folding back blanket and gown to 2 inches beyond the limits of prep area.
- (3) Using a sterile prep set, the circulator dons sterile gloves and cleanses the operative site with an antiseptic agent prior to the draping.
- (4) The skin is scrubbed from the proposed incision site in a circular direction gradually working to the outer edges, being careful never to bring the sponge back toward the clean area.

Figure 13



Note: If the patient has a soft-tissue, potentially malignant tumor, the surgeon may prefer to have an antiseptic agent applied over the cancerous area by painting rather than scrubbing. Vigorous scrubbing may free cancer cells to be picked up by the blood and lymph system.

- (5) After reaching the edges, a new sponge dipped in the antiseptic should be used beginning at the center and working to the edges again.
- (6) The skin prep should be carried on for at least 5 minutes. Cardiovascular and orthopedic preps are usually required to be longer such as 10 minutes.
- (7) When the prep area contains an open wound or a body orifice, those areas will be scrubbed last or with separate sponges, whether or not they are the incision site.

Example: For colostomies, the stoma is prepped last.

Information Sheet

- (8) The umbilicus is considered a contaminated area and should be scrubbed last with separate sponges or be cleansed first with separate sponges and applicators to avoid run off of dirty solution over cleansed skin area.

Note: Refer to your medical facilities' policies and procedures.

- (9) The vaginal area prep includes the pubis, vulva, labia, perineum, anus, and inner aspects of the upper thighs. Sponges are discarded after they pass the anus, and new sponges are used to repeat the procedure. The vagina is prepped last.
- (10) Contaminated wounds should be irrigated to flush out debris.
- (11) Solutions must not be allowed to pool under the patient since this can lead to chemical burns.
- (12) Flammable solutions, such as alcohol or tinctures and solvents, must be allowed to evaporate before drapes are applied to prevent accumulation of fumes, thus decreasing the possibility of fire if electrocautery is used.

9. Types of antiseptic agents used for OR skin preps

a. Iodine

- (1) May be combined in solution with water or alcohol
- (2) Is irritating to the skin
- (3) Is a good bactericide but stains fabric and tissue

b. Iodophor

Example: Betadine®

- (1) Is a complex of iodine and detergent
- (2) Is non-irritating to skin and mucous membranes
- (3) Removes debris from skin surfaces while slowly releasing 1% iodine for residual sporicidal effect. The iodine leaves a brown film that defines the prepped area.

Note: This should not be wiped off because microbial activity is enhanced by the release of iodine as agent dries.

- (4) Is very effective against gram-negative and gram-positive microorganisms

Information Sheet

c. Chlorhexidine gluconate

Example: Hibiclens®

- (1) Is a good alternative for those allergic to iodophor (or iodine)
- (2) Is a nontoxic, rapid-acting, broad-spectrum, antimicrobial agent
- (3) Is not absorbed through intact skin, but is an irritant to eyes and is contraindicated for facial antisepsis.
- (4) Has a residual effect for at least 4 hours

d. Hexachlorophene

Example: pHisoHex®

- (1) Develops a cumulative action after a period of frequent use. Therefore, is only used on patients who have washed exclusively for several days with this product.
- (2) Is effective against gram-positive microorganisms, but is ineffective against gram-negative and fungi
- (3) Is neutralized by alcohol

e. Alcohols (isopropyl and ethyl)

- (1) Are broad spectrum agents that denature cell proteins
- (2) For skin disinfection a 70 percent concentration is relatively safe to use
- (3) Should **NOT** be used on mucous membranes or on open wounds
- (4) Are flammable; therefore, they must be used in small quantities and must not be allowed to pool around or under patients, especially when lasers or electrosurgical units are used

10. **Purpose of draping** — To create and maintain a sterile field by covering the patient and surrounding areas with sterile barriers

11. **Types of draping materials**

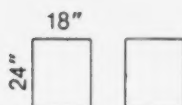
- a. Plastic with complete or partial adhesive backing
- b. Nonwoven, disposable (paper)
- c. Woven, reusable (cloth)

Information Sheet

12. Types of drapes

a. Towels

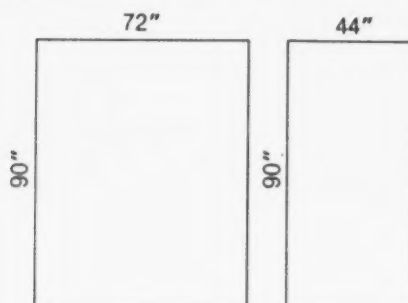
Figure 14



- (1) Usually four towels are used to outline the operative site
- (2) May be secured with towel clips or may be sutured or stapled to patient's skin

b. Plain sheets

Figure 15

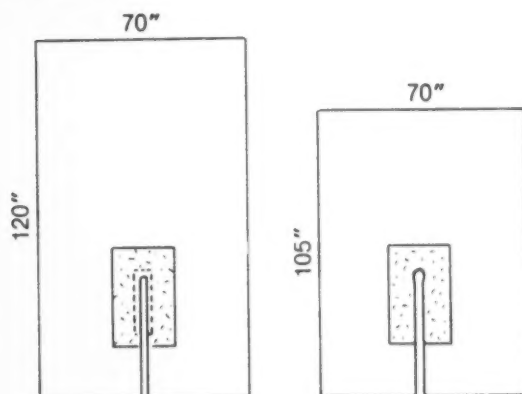


- (1) Used to cover the operating table, instrument tables, and body regions
- (2) Available in various sizes

Information Sheet

- c. Split sheets — Are plain sheets that have been cut up the middle resulting in tails which can be used to drape around an extremity

Figure 16



- d. Stockinet

Figure 17

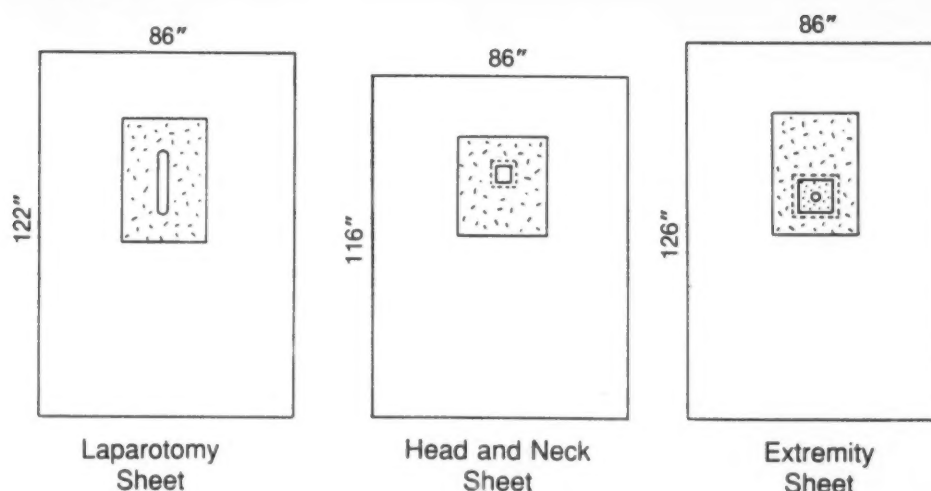


- (1) Used to cover an extremity
- (2) Made of porous and absorbent material so it is not a microbial barrier
- (3) An opening is cut through the stockinet over the proposed incision site.

Information Sheet

e. Fenestrated sheets (drapes)

Figure 18



- (1) Have windows (fenestrations) which allow exposure of the operative site
- (2) Available in several sheet sizes with the windows in various sizes and positions
- (3) The top or bottom of the folds are marked so they can be correctly unfolded and placed on the patient.

13. Guidelines for draping

- a. Draping is a very important part in preparing the surgical patient and **must** be done correctly using strict sterile technique.
- b. The circulator should observe for breaks in technique during draping procedure.
- c. The scrub must see that all necessary drapes are arranged in proper sequence on sterile table, and assists the surgeon in placing the drapes on the patient.
- d. The scrub carries the folded drape to the operating table.
- e. The surgeon or assistant usually places the self-adhering plastic drape and/or towels and towel clips to outline the incision site.
- f. Do not hand surgeon towels or towel clips across an unsterile field. Take them to side of table from which surgeon is going to apply them.

Information Sheet

- g. When draping, sterile person should stand back from the unsterile table.

Note: Sterile gowns may bulge and touch the nonsterile table or blanket on patient.

- h. Gloved hands are protected while draping by cuffing the end of the drape over them to prevent its contact with the surface being draped.
- i. Drapes must not be placed on wet areas.
- j. Excess handling of drapes should be avoided.
- k. Draping is done from a sterile area to an unsterile area.
- l. The incision site is draped before the adjacent areas are draped.
- m. Drapes should be held high enough to avoid touching nonsterile areas.
- n. Once a drape is placed, it must not be adjusted. If a drape is incorrectly placed, it must be discarded. The circulator peels it from the table without contaminating the other drapes or operative site.
- o. If a drape becomes contaminated, discard it without contaminating gloves or other articles.
- p. If a drape falls below waist level, it is considered contaminated and is not used.
- q. If in doubt as to sterility, consider the drape contaminated.
- r. The points of the towel clip that have been fastened through a drape are contaminated.

Note: Remove only if necessary during the surgical procedure, then discard it from the sterile field without touching points. Cover area from which it was removed with another nonabsorbent sterile drape.

Positioning, Prepping, and Draping
Unit 2-B

Student Supplement 1—Review Concepts of Positioning, Prepping, and Draping

Name _____ Date _____

Directions: Complete the following statements or questions by placing the correct answers in the blanks provided.

- _____ 1. Another name for the jackknife position is
- a. Lithotomy
 - b. Lateral
 - c. Kraske
 - d. Sim's
- _____ 2. The most important factor in positioning a patient for surgery is to allow
- a. The patient to be able to observe the operation
 - b. Maximum comfort and safety for the patient
 - c. The surgeon to sit down during the surgical procedure
 - d. The scrub personnel to sit down during the surgical procedure
- _____ 3. The position to be used for the patient is decided by
- a. The surgical technologist
 - b. The surgeon
 - c. The circulator
 - d. The anesthesiologist
- _____ 4. When the patient is in the supine position, the restraint (knee) strap is
- a. Placed above the knees
 - b. Placed below the knees
 - c. Placed on the knees
 - d. Not used
- _____ 5. When reverse Trendelenburg position is used,
- a. The abdominal viscera tend to fall toward the upper part of the abdominal cavity
 - b. The patient's circulation improves
 - c. Extra support such as a foot board and body straps must be used
 - d. The patient is in a normally comfortable position

Student Supplement 1

- _____ 6. The usual position on the O.R. table for a patient having kidney surgery is to be on the
- Abdomen
 - Uninvolved side
 - Involved side
 - Back
- _____ 7. What OR table attachment is specifically used because the patient is in the Trendelenburg position?
- Armboards
 - Footboard
 - Shoulder braces
 - Head rest
- _____ 8. When the patient is in the lithotomy position, the buttocks should be
- Even with the table edge
 - 2"-3" over the table edge
 - 2"-3" in from the table edge
 - 8" in from the table edge
- _____ 9. Which of the following prep solutions must be used exclusively by the patient several days prior to surgery in order to be an effective antiseptic?
- Iodophor
 - Chlorhexidine gluconate
 - Alcohol
 - Hexachlorophene
- _____ 10. A laparotomy sheet is
- Plain
 - Split
 - Whole
 - Fenestrated

Positioning, Prepping, and Draping **Unit 2-B**

Assignment Sheet 1—State Positions Commonly Used for Various Surgical Procedures

Name _____ Overall Rating _____

Evaluation criterion	Rating
Answers are correct	_____

Directions: State the position that would most commonly be used for the following surgical procedures. Consult a medical dictionary or other reference book if you do not understand what is involved in a particular procedure. Choose from the following list of positions for your answers: Supine, modified supine, Trendelenburg, reverse Trendelenburg, sitting, lithotomy, prone, Kraske, lateral kidney, and lateral chest.

1. Appendectomy — _____
2. Inguinal hernia repair — _____
3. Thoracotomy (surgeon desires lateral approach) — _____
4. Abdominal hysterectomy — _____
5. Laminectomy — _____
6. Thyroidectomy — _____
7. Partial gastrectomy — _____
8. Vaginal hysterectomy — _____
9. Hemorrhoidectomy — _____
10. Right nephrectomy — _____
11. Anal fistula excision — _____
12. T & A — _____
13. Mitral valve replacement — _____
14. D & C — _____
15. Suprapubic prostatectomy — _____

Positioning, Prepping, and Draping **Unit 2-B**

Assignment Sheet 2—Define the Limits for Preps on Various Surgeries

Name _____ Overall Rating _____

Evaluation criterion

Rating

Answers are correct

Directions: Define the limits of the preoperative surgical prep by shading the areas to be prepped on the diagrams below.

1. Abdominal surgery



2. Right forearm, elbow, and hand surgery

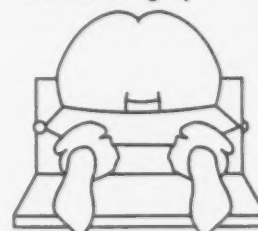


Fig. 2

3. Vaginal surgery



4. Rectal surgery



Assignment Sheet 2

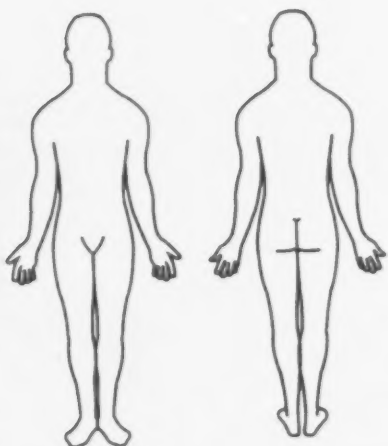
5. Left ankle, foot, or toe surgery



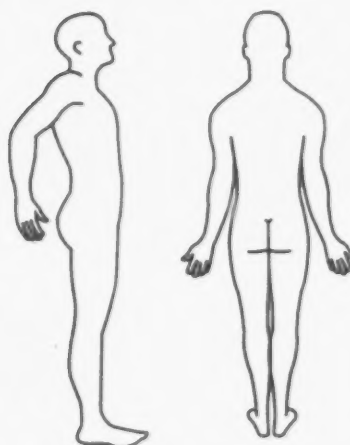
6. Left lower leg and foot surgery



7. Head surgery



8. Back surgery (lumbar laminectomy)

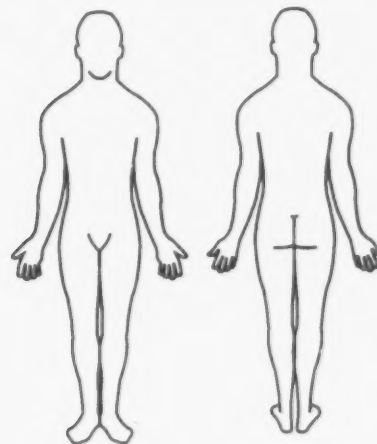


Assignment Sheet 2

9. Right shoulder surgery



10. Thoracic-abdominal surgery



Positioning, Prepping, and Draping Unit 2-B

Assignment Sheet 3—Solve Problems for Given Draping Situations

Name _____ Overall Rating _____

Evaluation criteria	Rating
Answers are appropriate	_____
Answers are clear and well-written	_____

Directions: Discuss what should be done to correct the following situations.

1. The laparotomy sheet is placed on the patient. The surgeon notices a hole in the sheet. What should be done to correct this situation?

2. A hair is found on a drape which has already been placed on the patient. What should be done to correct this situation?

3. While draping, the surgical technologist student hands the laparotomy drape sheet to the surgeon incorrectly so that the portion that goes to the head is at the patient's feet. What should be done to correct this situation?

Assignment Sheet 3

4. While placing the split sheet on the patient's extremity, the surgeon drops the end of the drape below table level. What should be done to correct this situation?

5. During a surgical procedure, the surgeon complains about a towel clip that the resident placed during draping and removes it. What should be done to correct this situation?

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 1—Position Patient in the Supine Position and Its Variations

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Operating room table (with appropriate sheets already on)
 Armboards, 2, and their safety straps
 Padding and pillows
 Arm sheets, 2
 Tape
 Safety restraint strap
 Shoulder braces
 Padded footboard
 Stirrups with foot slings
 Adequate personnel to assist in moving the patient (for lithotomy position)

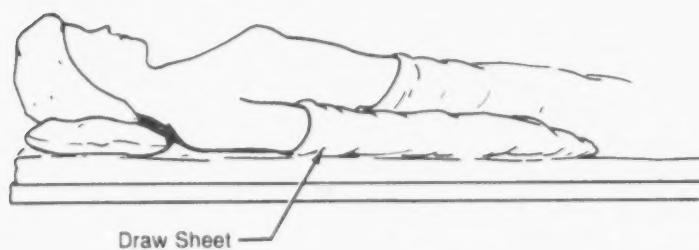
B. Procedure

- ☐ 1. Position patient in supine position.
 - ☐ a. Place patient in center of operating room table.
 - ☐ b. Place small pad under patient's head.

Job Sheet 1

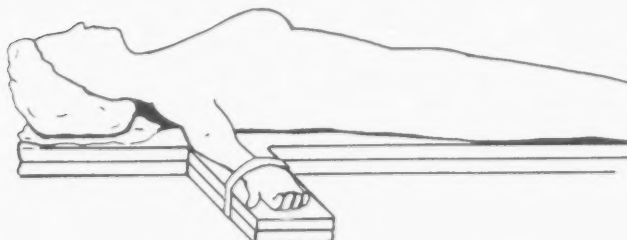
- ☐ c. Position arms in one of the following ways:
- (1) Place arms at patient's sides, pronate hands, and secure with arm sheet tucked under mattress.

Figure 1



- (2) Or, extend arms on armboards, place palms up, and secure in place with safety straps (loosely). Add padding under elbow and hand if required.

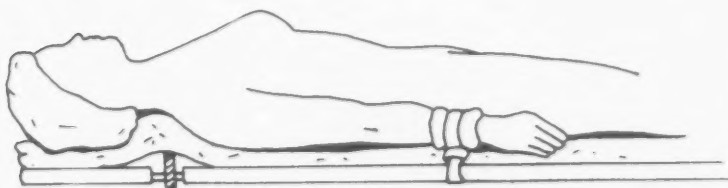
Figure 2



Note: Arms should be extended at less than a 90° angle.

- (3) Or, place arms at patient's sides, pronate hands, and secure with wrist straps.

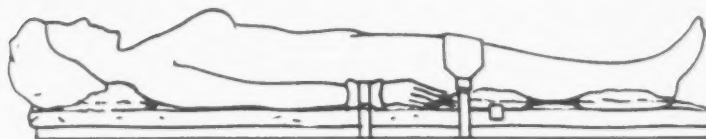
Figure 3



Job Sheet 1

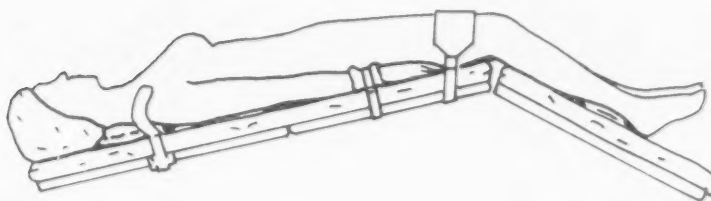
- ☐ d. Place small pad under small of back for support.
- ☐ e. Slightly flex knees to decrease lumbar strain.
- ☐ f. Place safety strap 2-4 inches above knee.

Figure 4



- ☐ 2. Position patient in Trendelenburg position.
 - ☐ a. Position patient with knees over lower break in table.
 - ☐ b. Complete steps 1b-f outlined for supine position.
 - ☐ c. Tilt head section and knee section downward approximately 45°.

Figure 5

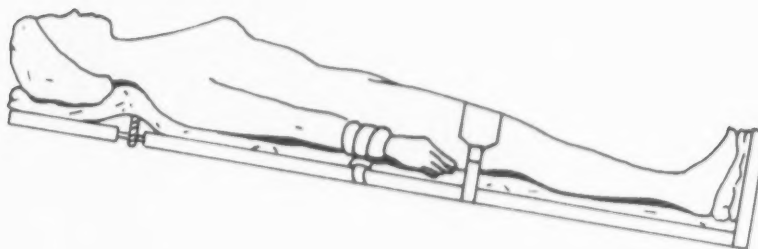


- ☐ 3. Position patient in reverse Trendelenburg position.
 - ☐ a. Complete steps 1a-f outlined for supine position.
 - ☐ b. Place padded footboard on table.

Job Sheet 1

- ☐ c. Tilt complete table to foot down position. Table will be straight with head higher than feet.

Figure 6

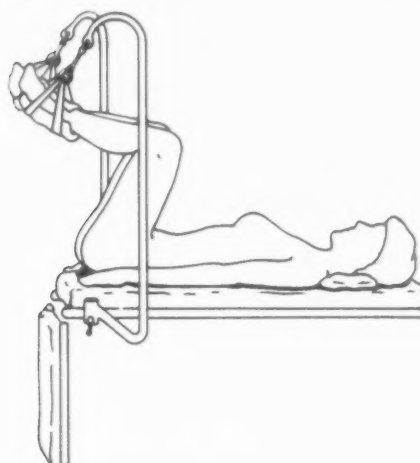


- ☐ 4. Position patient in lithotomy position.
 - ☐ a. Place patient on table with buttocks at break between leg and body sections.
 - ☐ b. Attach stirrups to table.
 - ☐ c. Complete steps 1b-f outlined for supine position.
 - ☐ d. Obtain assistance for raising both legs at the same time.
 - ☐ e. Raise both legs together and place in stirrups.
 - ☐ f. Flex knees comfortably, allowing feet to rest easily in stirrups.
 - ☐ g. Reposition buttocks to rest at edge of table.

Job Sheet 1

- ☐ h. Lower the leg section of table to flex at a 90° angle downward.

Figure 7



Evaluator's comments: _____

Positioning, Prepping, and Draping

Unit 2-B

Job Sheet 2—Position Patient in the Prone Position and Its Variation

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Operating room table (with appropriate sheets already on)
 Armboards, 2
 Body rolls or appropriate abdominal support such as Wilson Frame or the physician's preference
 Foam pillow or towels for the head
 Padding and pillows
 Footboard and pad
 Adequate personnel to assist in turning the patient
 Safety restraint strap
 Wide adhesive tape and adhesive spray (for Kraske position)

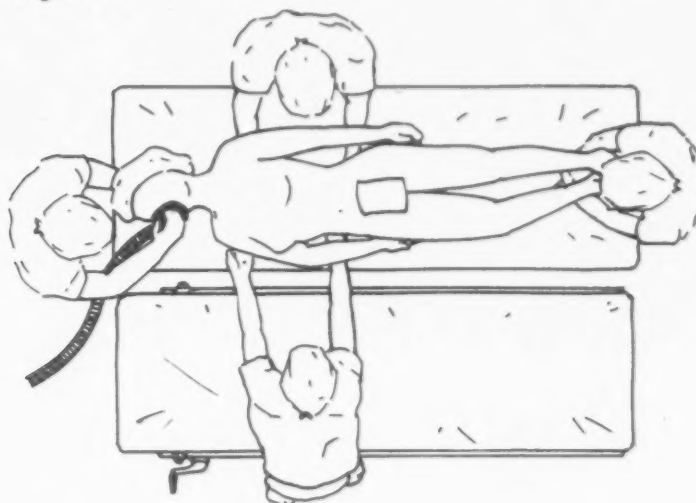
B. Procedure

- ☐ 1. Position patient in prone position.
 - ☐ a. Place body rolls or abdominal support on the operating table to support the body from the acromioclavicular joint to the iliac crest.
 - ☐ b. Place the first pillow on the table to support the lower abdomen.
 - ☐ c. Place the second pillow on the lower end of the table to support the feet and the ankle.

Job Sheet 2

- ☐ d. Place the footboard on the table with a pad if needed as a foot support extension.
- ☐ e. Obtain a minimum of 4 people to turn the patient.

Figure 1



- ☐ (1) The anesthesiologist supports the head and the shoulders.
- ☐ (2) One assistant stands on the stretcher side to initiate the roll from the buttocks and the shoulders.
- ☐ (3) The second assistant stands on the opposite side of the operating table with arms extended to support the chest and the lower abdomen when the patient is turned.
- ☐ (4) The third assistant stands at the foot of the stretcher and operating room table to support the feet.
- ☐ f. After induction, obtain permission from anesthesia personnel to turn the patient.
- ☐ g. Check to make sure the stretcher is locked.
- ☐ h. Position the patient's arms alongside the trunk of the body for the turning.

Job Sheet 2

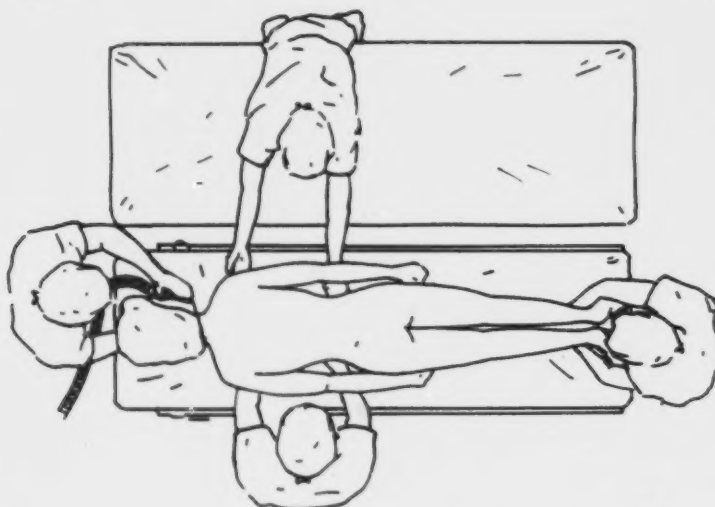
- ☐ i. Remove blanket and gown prior to the turning.

Note: Arms are taken out of the gown prior to starting the IV.

- ☐ j. In collaboration with other personnel, turn the patient smoothly, safely, and gently.

Note: The anesthesiologist is usually in charge of the turn, and counts "1-2-3" at which time the patient is gently turned.

Figure 2



- ☐ k. Move stretcher away from the operating table.
- ☐ l. Attach the armboards to the table.
- ☐ m. Apply a blanket to the thighs and feet.
- ☐ n. Position the safety restraint strap as directed by hospital policy.
- ☐ o. Place the feet on a pillow being cautious of the patient's circulation.
- ☐ p. Place both arms on extended armboards using good body mechanics.

Job Sheet 2

- ☐ q. Place a small pillow or towels under the head while turning head to one side.

Note: This pillow will protect the patient's eye and ear from pressure.
- ☐ r. If patient is female, check to make sure breasts are free. If patient is male, protect the genitalia with an additional towel or small pillow at the pubis.
- ☐ s. Check chest, knee, and ankle areas to make sure these pressure areas are adequately supported. Adjust as necessary.

Figure 3



- ☐ 2. Position patient in the Kraske position.

Note: Now that the patient is in the prone position, he/she can be moved into the Kraske position with a few adjustments.

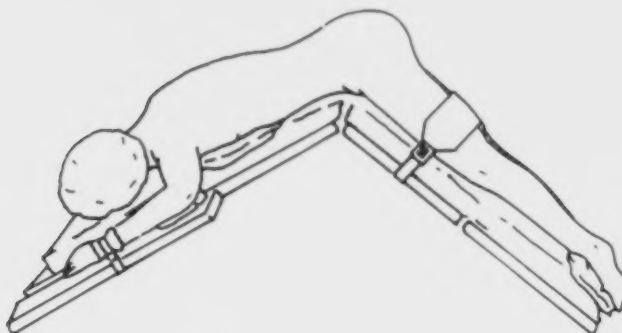
- ☐ a. Check to make sure that patient's hips are directly over the lower table break, and that this area is adequately supported with a pillow. Adjust as necessary.

Note: The pillow was placed earlier, but check to make sure it is still in the correct position.

Job Sheet 2

- ☐ b. Anesthesiologist or circulator flexes the table to a 90° angle with the head and legs down.

Figure 4



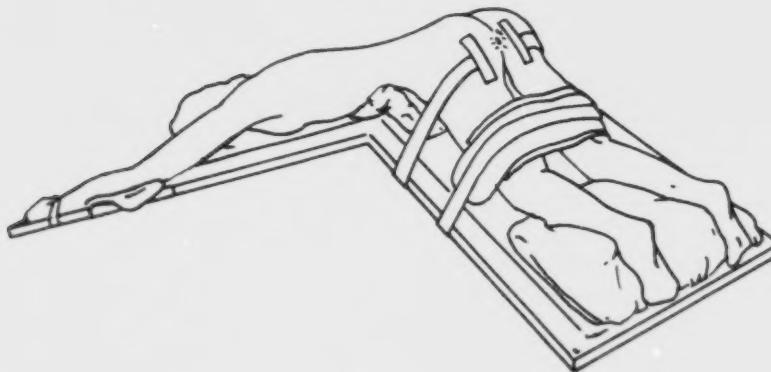
- ☐ c. For procedures in the rectal area (hemorrhoidectomy, pilonidal sinus, etc.), you will also need to:
- ☐ (1) Spray the buttocks on both sides of the anus with the adhesive spray.
 - ☐ (2) Tape the buttocks using wide adhesive tape a few inches from the midline.

Note: The tape is torn on the end applied to the buttocks in thirds. A second piece of tape is applied to hold down the piece of tape on the buttock end.

Job Sheet 2

- ☐ (3) Pull the straps tightly simultaneously and then fasten to the underside of the table.

Figure 5



Evaluator's comments: _____

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 3—Position Patient in the Lateral Position and Its Variation

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Operating room table (with appropriate sheets already on)
Armboards, 2

Note: One should be the special overhead armboard which fits the table.

Rolled towels or chest rolls
Padding and pillows
Anesthesia screen
Adequate personnel to assist in turning the patient
Safety restraint strap
Tape to secure the patient
Kidney rest
Kidney braces

Job Sheet 3

B. Procedure

Note: The patient is transferred onto the operating table in the supine position.

- ☐ 1. Place the standard armboard on the unaffected side which the patient will be facing.
- ☐ 2. Obtain a minimum of 4 people to turn the patient.
 - ☐ a. The anesthesiologist supports the head and the shoulders.
 - ☐ b. One assistant stands on the stretcher side.
 - ☐ c. A second assistant stands on the opposite side of the operating table.
 - ☐ d. A third assistant stands at the foot of the stretcher and the operating room table to support the feet.
- ☐ 3. After induction, obtain permission from anesthesia personnel to turn the patient to the unaffected side.
- ☐ 4. Check to make sure the stretcher is locked.
- ☐ 5. Remove the blanket and gown prior to the turning.

Note: The arms are taken out of the gown prior to starting the IV.

- ☐ 6. In collaboration with other personnel, turn the patient smoothly, gently, and safely.
- ☐ 7. Move the stretcher away from the operating table.
- ☐ 8. Place rolled towels or chest rolls in the axilla area to facilitate respiratory function and chest expansion.
- ☐ 9. Place the special armboard on the table to position the arm on the affected side.

Note: This armboard needs to be padded for patient safety. If the armboard is unavailable, the anesthesia screen can be padded and used to position the arm. The arm can also be positioned on top of a pillow.

- ☐ 10. Place the anesthesia screen in position.
- ☐ 11. Place a stabilizing sandbag in front of the chest.

Job Sheet 3

- ☐ 12. Place a small pillow or blanket under the head for good body alignment.
- ☐ 13. Flex the lower leg at a 90° angle to help stabilize the patient.
- ☐ 14. Place the first pillow crosswise between the patient's thighs.
- ☐ 15. Place the second pillow lengthwise between the knees and the ankles.

Note: The leg on the affected side is straight or slightly flexed on the pillows.

- ☐ 16. Place a blanket on the leg which is on top of the pillow below the hip level.
- ☐ 17. Apply the restraint (knee) strap over the leg between the knee and the ankle.
- ☐ 18. Apply the adhesive tape to the lower portion of the hip and the upper portion of the thigh for stabilization, and fasten to the underside of the operating table.

Note: A second piece of tape may need to be applied to the shoulder area to further stabilize the patient.

- ☐ 19. Check for good body alignment and adequate support at pressure points especially at the point where the down knee touches the table. Adjust and add support as needed.

Figure 1

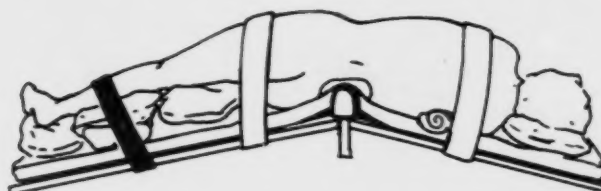


Job Sheet 3

- ☐ 20. Place the kidney braces on the table at this time if the kidney rest is to be elevated.

Note: For kidney procedures, the table will be flexed with the patient's head and feet down. See Figure 2.

Figure 2



Evaluator's comments: _____

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 4—Prep Patient's Skin for Abdominal Surgery

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Sterile-wrapped prep set (disposable or non-disposable) to include:

- Prep solution containers, 2
- Prep sponges
- Cotton-tipped applicators
- Sterile towel

Sterile gloves

Note: These may be included in disposable prep sets.

Prep solutions (according to surgeon's preference)

Drape towels (optional as indicated by surgeon's preference)

B. Procedure

- ☐ 1. Assemble the supplies.
- ☐ 2. Verify (before anesthesia induction) the surgical procedure with the patient and chart, and check for allergies.
- ☐ 3. Open prep set on small table using aseptic technique.
- ☐ 4. Pour appropriate solutions into basins.

Job Sheet 4

- ☐ 5. Proceed with the skin prep after receiving permission from the anesthesiologist/anesthetist.

- ☐ 6. Expose operative site by folding gown and linens away neatly.

Note: Provide adequate exposure while still keeping patient covered for warmth and privacy where possible.

- ☐ 7. Turn on and adjust overhead lights to provide adequate illumination.

- ☐ 8. Examine skin for abrasions, irritations, or rash. If abnormality is noted, report it to the surgeon; if not, proceed with prep.

- ☐ 9. Don sterile gloves using open-gloving technique.

- ☐ 10. Arrange supplies for most efficient use.

Note: Remember to avoid open wrapper edges which are considered unsterile after the wrapper is open.

- ☐ 11. Fold sponges if necessary and place in appropriate containers to avoid undue handling.

- ☐ 12. Drape both sides of abdomen with sterile towels as indicated by surgeon's preference or OR policy.

Note: This is done to prevent pooling of antiseptic solution under the patient and/or wetting of bed linens.

- ☐ 13. Gently clean umbilicus with cotton-tipped applicator or small sponge which has been dipped in prep solution.

- ☐ 14. Dip sponge in prep solution and begin prepping intact skin at the site of the incision with small circular motions.

Figure 1

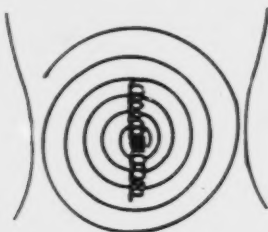


Note: Use moderate amount of friction.

Job Sheet 4

- ☐ 15. Extend prep in a larger circular motion away from the incision site as far as is necessary to ensure a wide margin of safety around the incision.

Figure 2



Note: A typical abdominal prep is performed from nipple line to groin, and bedside to bedside. This may vary according to the surgical procedure and/or OR policy.

- ☐ 16. After one sponge has been used to prep incision and periphery, discard it in a manner that prevents strike-through.

Note: **Never** go back over a previously prepped area with a contaminated sponge. When prepping the periphery using wide circular motions, do not swing back up along the patient's side after prepping in the groin area.

- ☐ 17. Use subsequent sponges in a similar manner proceeding from incision to periphery.
- ☐ 18. Continue prep for length of time indicated by OR policy.

Note: This is usually five to ten minutes.

- ☐ 19. If drying is indicated by surgeon's preference, place sterile towel on abdomen and blot.
- ☐ 20. Use two hands to remove towel by grasping farthest edges, both corners, and lifting up and away. Do not drag towel edges over prepped area.
- ☐ 21. If painting is indicated, change gloves and paint the abdomen from incision to periphery.
- ☐ 22. After prep is complete, discard sponges as indicated by OR policy.

Note: Sponges may be of similar size as surgical sponges. Contain them in a defined area until end of operative procedure.

Job Sheet 4

- ☐ 23. Discard prep solution in the same manner as suction container contents or other contaminated liquids.
- ☐ 24. Remove gloves without contaminating hands.

Note: Modifications of this procedure may be required. They are based on the principle that washing should proceed from clean to dirty areas. For instance, with colostomies the operative area around the colostomy would be prepped first, with the stoma itself prepped last and then the sponge discarded.

Evaluator's comments: _____

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 5—Prep Patient's Skin for Vaginal Surgery

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Sterile-wrapped prep set (disposable or non-disposable) to include:

- Prep solution containers, 2
- Prep sponges
- Sterile towel

Sterile gloves, 2 pairs

Note: One pair may be included in disposable prep sets.

Prep solutions (according to surgeon's preference)

Underbuttocks drape or towels

Cotton balls or foam sponges, optional

B. Procedure

- ☐ 1. Verify (before anesthesia induction) the surgical procedure with the patient and chart, and check for allergies.
- ☐ 2. Assemble the supplies.
- ☐ 3. Open prep set on small table using aseptic technique.
- ☐ 4. Pour appropriate solutions into basins.

Job Sheet 5

- ☐ 5. After receiving permission from the anesthesia person, position patient in lithotomy position.
- ☐ 6. Expose operative site by folding gown and linens away neatly.
Note: Provide adequate exposure.
- ☐ 7. Turn on and adjust overhead lights in order to provide adequate illumination.
- ☐ 8. Examine skin for abrasions, irritations, or rash. If abnormality is noted, report it to the surgeon; if not, proceed with prep.
- ☐ 9. Don sterile gloves using open-gloving technique.
- ☐ 10. Arrange supplies for most efficient use.
Note: Remember to avoid open wrapper edges which are considered unsterile after the wrapper is open.
- ☐ 11. Fold sponges if necessary and place in appropriate containers to avoid undue handling.
- ☐ 12. Place underbuttocks drape under the patient's buttocks to prevent wetting of bed linens.
Note: Some hospitals use an alternative technique such as placing a plastic bag or sheet under the buttocks prior to open gloving.
- ☐ 13. Dip clean sponge in prep solution and begin prepping intact skin with small circular motions at the mons pubis.
- ☐ 14. Extend prep upward with first sponge across abdomen to the level of the umbilicus. Discard sponge.
- ☐ 15. With second clean sponge, prep from mons pubis downward over outside of one labia (avoiding anal area). Discard sponge.
- ☐ 16. With new sponge, repeat the same area (in Step 15).
- ☐ 17. With new sponge, prep anal area. Discard sponge.
- ☐ 18. Using a clean sponge on a sterile ring forcep, prep inside the vaginal vault being sure to prep around and behind the cervix. Discard sponge.

Note: The interior vaginal prep may be omitted according to surgeon's preference for a cold knife conization or incomplete abortion.

Job Sheet 5

- ☐ 19. If drying is indicated by surgeon's preference, place sterile towel over lower abdominal and perineal area and blot dry.
- ☐ 20. Use two hands to remove towel by grasping farthest edges, both corners, and lifting up and away. Do not drag towel edges over prepped area.
- ☐ 21. If painting is indicated, change gloves and paint the area using same step-by-step procedure described above.
- ☐ 22. After prep is complete, discard sponges as indicated by OR policy.

Note: Sponges may be of similar size as surgical sponges. Contain them in a defined area until end of operative procedure. However, there shouldn't be a confusion since all sponges for OR procedures should be radiopaque.

- ☐ 23. Discard prep solution in the same manner as suction container contents or other contaminated liquids.
- ☐ 24. Remove gloves without contaminating hands.

Evaluator's comments: _____

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 6—Prep Patient's Skin for Surgery on an Extremity

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Sterile-wrapped prep set (disposable or non-disposable) to include:

- Prep solution containers, 2
- Prep sponges
- Towels

Sterile gloves

Note: These may be included in disposable prep sets.

Prep solutions (according to surgeon's preference)

Unsterile plastic or non-absorbable drape sheet

B. Procedure

- ☐ 1. Verify (before anesthesia induction) the surgical procedure with the patient and chart, and check for allergies.
- ☐ 2. Assemble the supplies.
- ☐ 3. Open prep set on small table using aseptic technique.
- ☐ 4. Pour appropriate solutions into basins.

Job Sheet 6

- ☐ 5. Proceed with the skin prep after receiving permission from the anesthesiologist/anesthetist.
- ☐ 6. Expose operative site by folding gown and linens away neatly.
- ☐ 7. Turn on and adjust overhead lights in order to provide adequate illumination.
- ☐ 8. Examine skin for abrasions, irritations, or rash. If abnormality is noted, report it to the surgeon; if not, proceed with prep.
- ☐ 9. Place a non-sterile plastic sheet or wrapper under the leg or arm to be prepped to avoid wetting the bed linens.
- ☐ 10. Don sterile gloves using open-gloving technique.
- ☐ 11. Arrange sterile supplies for most efficient use.

Note: Remember to avoid open wrapper edges which are considered unsterile after the wrapper is open.

- ☐ 12. Fold sponges if necessary and place in appropriate containers to avoid undue handling.
- ☐ 13. Dip sponge in prep solution and begin prepping at the toes (or fingers).
- ☐ 14. Prep from toes down the ball and front of the foot (or down the back and palm of the hand).
- ☐ 15. Grasp the foot at the ball of the foot or toes (or hold the hand) and gently lift the extremity off the bed.
- ☐ 16. Continue prepping the foot (or hand) down to the ankle (or wrist).

Note: After the foot or hand has been prepped, hand the foot or hand to a sterile-gloved person who will keep the extremity elevated throughout the prep procedure. An alternative that may be available is to use a mechanical limb support device.

- ☐ 17. Continue the prep by starting at the incision line (knee, ankle, wrist, elbow, etc.) and prepping in circular motions around leg (or arm) upward to tourniquet or groin (or shoulder). Discard sponge.
- ☐ 18. Starting again at the incision line, prep downward in circular motions around the leg (or arm) to the toes (or fingers). Discard sponge.

Job Sheet 6

- ☐ 19. Repeat upward and downward prep for recommended length of time.

Note: This is usually 10 minutes.

- ☐ 20. If drying is indicated by surgeon's preference, place one sterile towel lengthwise over upper leg (or arm) and one sterile towel lengthwise over lower leg and foot (or arm and hand) and blot.
- ☐ 21. Use two hands to remove towels by grasping farthest edges, both corners, and lifting up and away, without dragging towel edges over prepped area.
- ☐ 22. If painting is indicated, change gloves and paint from incision upward. With a new sponge, paint from the incision downward.

Note: After the prep is complete, the leg or arm must remain elevated off of the unsterile bed until sterile drapes are applied by the scrubbed team. While the person holding the leg or arm continues to elevate, the person who prepped should remove the drape which has covered the bed linens without letting it touch the prepped extremity.

- ☐ 23. After prep is complete, discard sponges as indicated by OR policy.

Note: Sponges may be of similar size as surgical sponges. Contain them in a defined area until the end of the operative procedure.

- ☐ 24. Discard prep solution in the same manner as suction container contents or other contaminated liquids.
- ☐ 25. Remove gloves without contaminating hands.

Evaluator's comments: _____

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 7—Drape Patient for a Laparotomy

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Sterile towels, 4
Towel clamps, 4 (optional)
Half sheets, 2 (optional)
Laparotomy sheet, 1

B. Procedure

- ☐ 1. Fold towels with cuffs on them—3 up, 1 down.
- ☐ 2. Insert hands under cuffs, and place towels to square off patient's incisional site.

Note: Towel clamps may be used to secure the towels at the inside corners. Refer to procedure card (or instructor) to see if towel clamps are needed. They may not be needed if a plastic incise drape is to be used.

- ☐ 3. Place one half sheet on bottom half of patient, edge even with towel.
- ☐ 4. Place other half sheet on top half of patient, edge even with towel.

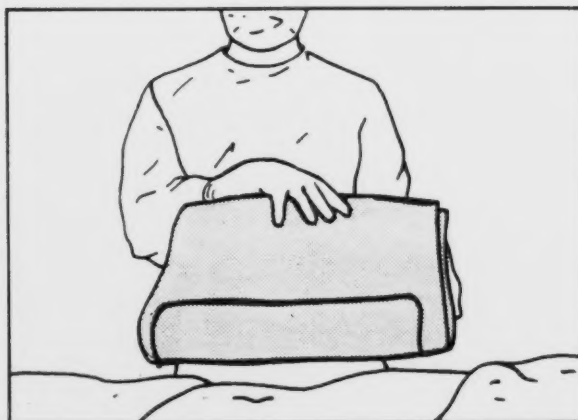
Note: These two half sheets are not always used, but they do provide an extra barrier that the surgeon may desire. Refer to procedure card (or instructor) to see if they are needed.

Job Sheet 7

- ☐ 5. Orient laparotomy sheet over patient's incision site.

Note: If the drape is disposable, follow the manufacturer's fenestration instructions and arrows.

Figure 1



- ☐ 6. Place laparotomy sheet on patient with fenestration covering incision site.

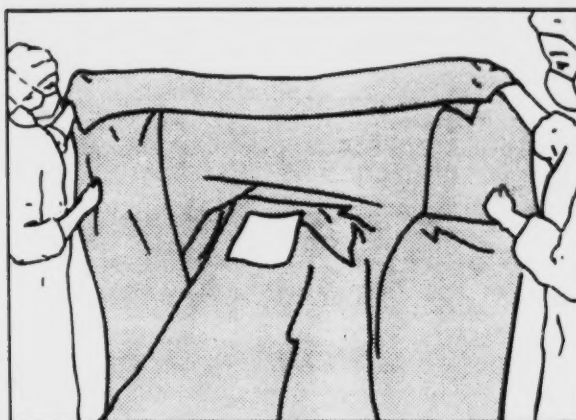
Caution: Be sure to stand back a safe distance from the table to prevent contamination of sterile gown.

- ☐ 7. Unfold drape laterally, holding at table level.
- ☐ 8. Unfold bottom section toward patient's feet.

Job Sheet 7

- ☐ 9. Open remaining folds toward patient's head and over anesthesia screen.

Figure 2



Evaluator's comments: _____

Positioning, Prepping, and Draping
Unit 2-B

Job Sheet 8—Drape Patient for Vaginal Surgery

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Towels, 4
Towel clamps, 2 or 4

Note: These may not be needed. Refer to surgeon's preference card.

Underbuttocks drape, 1
Leggings, 2
Lithotomy sheet, 1

Note: Some lithotomy sheets have attached leggings. If this is the case, you will not need any additional leggings.

Job Sheet 8

B. Procedure

- ☐ 1. Place both hands in cuff of underbuttocks drape and clip drape under patient's buttocks.

Figure 1

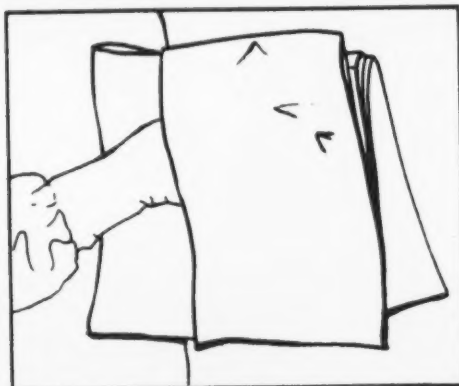


- ☐ 2. Place a towel on the inside of each leg (2 total) according to surgeon's preference.
- ☐ 3. Place one towel on the pubic area.
- ☐ 4. Place one towel right above the anus.
- ☐ 5. Refer to surgeon's preference card to see how many, if any, towel clamps are to be used to secure the towels. Secure as required.

Job Sheet 8

- ☐ 6. Slip right hand into preformed legging cuff, and grasp tacked spot between thumb and forefinger.

Figure 2



- ☐ 7. Holding folded legging in both hands, grasp legging toe with left hand and allow to unfold vertically.

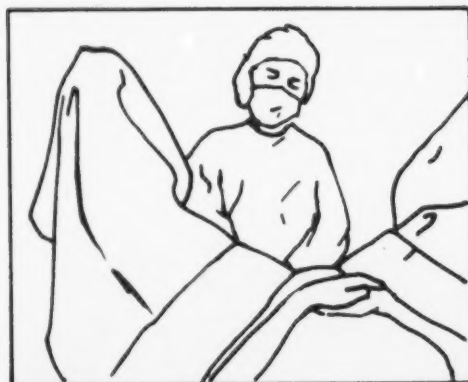
Figure 3



Job Sheet 8

- ☐ 8. Slip legging over stirrup, cuff first, and extend to perineum. Do not unfold cuff, which will provide a double layer of reinforcement around operative area.

Figure 4



- ☐ 9. Repeat procedure for other legging.
- ☐ 10. Orient lithotomy sheet according to manufacturer's directional arrows.
- ☐ 11. Place folded drape on patient with lower edge just above perineum.

Figure 5



Job Sheet 8

- ☐ 12. Open sheet toward patient's head and over anesthesia screen, extending fully.
- ☐ 13. Unfold fenestrated area of sheet between patient's legs to cover perineum.

Figure 6



- ☐ 14. Unfold drape laterally and allow ends to fall freely toward floor.

Evaluator's comments: _____

Positioning, Prepping, and Draping **Unit 2-B**

Job Sheet 9—Drape Patient for Surgery on an Extremity (Leg)

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Handled patient safely and carefully	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Towel, 1

Towel clamps, 2

Half sheets, 2

One of the following:

- Laparotomy sheet
- Extremity sheet
- Split sheet

6" stockinet, 1

Fabric-reinforced plastic sheet, 1 (optional)

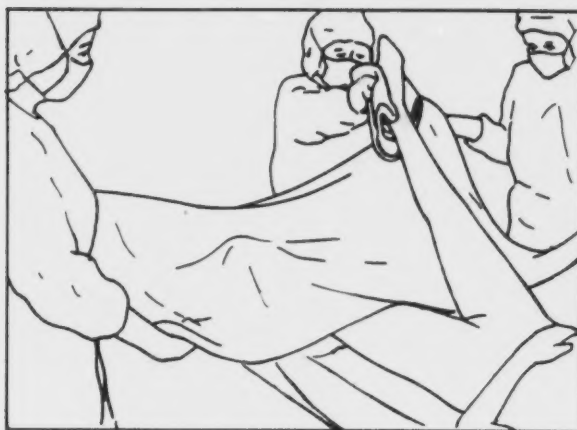
B. Procedure

- ☐ 1. When patient's affected leg is suspended, place the plastic sheet (optional) under the patient's leg.

Job Sheet 9

- ☐ 2. With patient's leg still elevated place one half sheet (on top of the plastic sheet) under the affected leg, over the unaffected leg, and across the OR table.

Figure 1



- ☐ 3. Place towel completely around leg about mid-thigh.
- ☐ 4. Place towel clamp to secure towel.
- ☐ 5. Put hand through stockinet roll.
- ☐ 6. Grasping patient's toes, unroll the stockinet toward the upper leg making sure that you keep your hand on the outside of the roll.

Note: Do not touch the patient's skin.

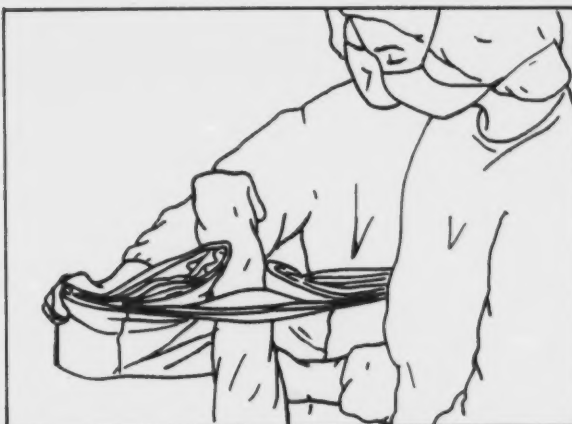
Figure 2



Job Sheet 9

- ☐ 7. Drape other half sheet across the upper part of the leg, covering the patient's adjacent mid-section.
- ☐ 8. If you will be using a lap or extremity sheet, go to step 9. If you will be using a split sheet, go to step 10.
- ☐ 9. Using a laparotomy or extremity sheet:
 - ☐ a. Position drape with "long end" arrow pointing toward the head of the patient.
 - ☐ b. With assistance, insert limb through fenestration and draw over the affected limb past the operative site.

Figure 3

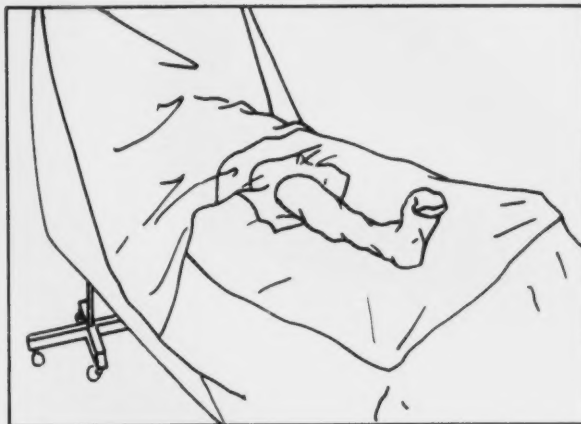


- ☐ c. Unfold drape laterally, extend "long end" toward patient's head and over anesthesia screen, and then extend other end to cover foot of OR table.

Job Sheet 9

- ☐ d. Lower limb.

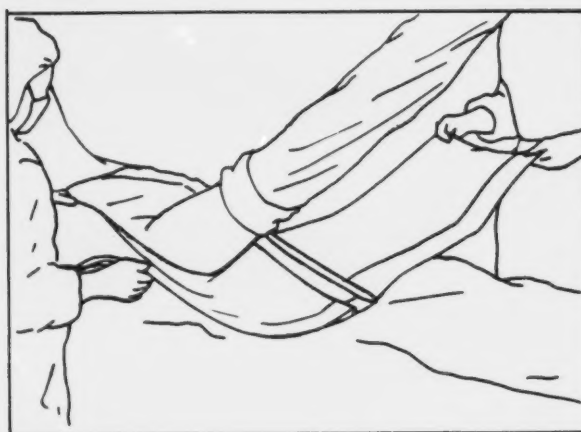
Figure 4



Note: At this point, you may be expected to cut the stockinet to expose the operative site, or the surgeon may prefer to cut it later.

- ☐ 10. Using the split sheet
 - ☐ a. With assistance to lift the affected leg, position split sheet under the leg, and unfold laterally.

Figure 5



Job Sheet 9

- ☐ b. Unfold body of split sheet (unsplit end) to cover bottom of OR table.
- ☐ c. Lay leg down on sheet.
- ☐ d. Unfold the two parts of the split (tails) toward head of patient.
- ☐ e. Towel clip the two tails on top of the leg.

Evaluator's comments: _____

Positioning, Prepping, and Draping
Unit 2-B

Job Sheet 10—Drape a Mayo Stand

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Mayo stand, 1
Mayo cover, 1

B. Procedure

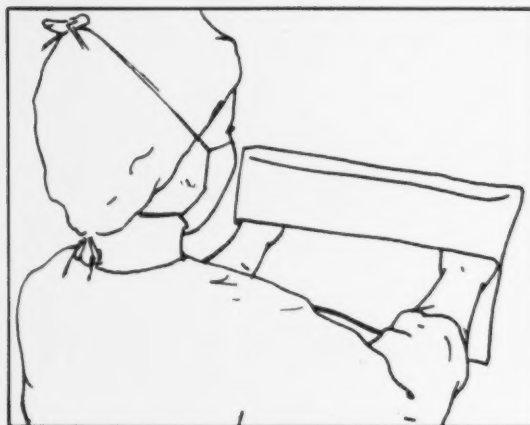
- ☐ 1. Adjust height of Mayo stand.

Note: The Mayo height for draping should be slightly above waist level.

Job Sheet 10

- ☐ 2. After scrubbing, gowning, and gloving, place hands into preformed cuff and spread apart.

Figure 1



- ☐ 3. Making sure to grasp closed end of Mayo stand cover (which is folded inside cuff), slip open end onto Mayo stand tray and slide cover on as far as possible. Put your foot on the base of the stand to control the movement of the stand.

Note: Control the end of the cover, and keep at waist level.

Figure 2



Job Sheet 10

- ☐ 4. With one hand, pull closed end from inside cuff.

Figure 3



- ☐ 5. With other hand, pull cover completely over tray and let edges fall toward floor.

Note: The circulator will pull cover completely down over Mayo stand base if necessary.

Evaluator's comments: _____

Positioning, Prepping, and Draping Unit 2-B

Job Sheet 11—Connect Suction to the Field

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Suction unit
Sterile suction tubing
Sterile suction tip

B. Procedure

- ☐ 1. Connect sterile tubing to suction tip on the sterile field.
- ☐ 2. Anchor approximately 12-18 inches of tubing to the sterile drapes to prevent slippage off the field.

Job Sheet 11

- ☐ 3. Pass distal end of connecting tubing to circulator.

Note: Circulator will connect to suction unit and turn unit on.

Figure 1



Evaluator's comments: _____

Related Nursing Procedures Unit 3-B

Objective Sheet

Unit Objective

After completing this unit, the student should be able to complete statements concerning vital signs and specimens. The student should also be able to take vital signs and care for specimens. The student should demonstrate these competencies by completing the assignment sheets and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to vital signs with their correct definitions.
2. Distinguish between normal and abnormal heart sounds.
3. Select true statements concerning characteristics of blood pressure.
4. Identify thermometers used to take patient's temperature.
5. Complete a chart of normal temperatures and the sites where they are taken.
6. Complete statements concerning characteristics of pulse.
7. Match average pulse rates with their specific groups.
8. Identify sites for taking pulse.
9. Match terms related to respiration and breathing difficulties with the correct definitions.
10. Match normal rates of respiration with the correct age groups.
11. Discuss criteria used when assessing pulse and respiration rates
12. Match terms related to specimens with the correct definitions.
13. List kinds of specimens.
14. Select true statements concerning the care and handling of specimens.

Objective Sheet

15. Select true statements concerning the special handling required for some specimens.
16. Read Fahrenheit thermometers. (Assignment Sheet 1)
17. Read centigrade thermometers. (Assignment Sheet 2)
18. Obtain oral temperature. (Job Sheet 1)
19. Assess radial pulse. (Job Sheet 2)
20. Assess apical pulse. (Job Sheet 3)
21. Assess apical/radial pulse. (Job Sheet 4)
22. Assess respirations. (Job Sheet 5)
23. Obtain blood pressure reading. (Job Sheet 6)

Related Nursing Procedures Unit 3-B

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Common Thermometers (Objective 4)
TM 2—Pulse Sites (Objective 8)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the student supplement. This could be used as a homework assignment, practice exercise, or quiz. Explain to students how you plan to evaluate the supplement, if at all.
12. Discuss the assignment sheets. Review criteria for evaluation of these activities.

Suggested Activities

13. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

14. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
15. Make copies of the written test. Add or modify test items as needed.
16. Give written test.
17. Compile assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
18. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Discuss situations/circumstances where a surgical technologist would be required to take vital signs. This activity will enhance **communication skills, creative thinking skills, group effectiveness (teamwork), and critical thinking skills.**
2. Show videos dealing with vital signs. This activity can reinforce information given in the lecture setting by enhancing **reading foundation skills, listening communication skills, and problem solving adaptability skills.**
3. Discuss and demonstrate CPR. This is important for all healthcare workers. Booklets may be obtained from the American Heart Association. Each student should give a return demonstration and pass the written evaluation. This activity will enhance **group effectiveness interpersonal relations skills, group effectiveness teamwork skills, leadership influence skills, reading foundation skills, oral communication skills, and problem solving skills.**
4. Practice taking vital signs on classmates. This activity will enhance **oral communication skills, personal management skills, teamwork effectiveness skills, and interpersonal effectiveness skills.**

Suggested Activities

5. Arrange for students to visit the post anesthesia recovery room to observe how vital signs may differ on patients under the influence of anesthetics. Observe the procedures and equipment used to monitor the vital signs of these patients. This activity will reinforce **foundation reading skills, oral communication skills, listening communication skills, and teamwork skills.**
6. Arrange for students to visit a local medical facility's laboratory so they can see the difference between frozen and permanent sections, and the various ways specimens are cared for. This will reinforce **communication skills and group effectiveness skills.**

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing.* Denver: Association of Operating Room Nurses, Inc., 1991.
2. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, 1992.
3. *Core Curriculum for Surgical Technology.* Littleton, CO: Association of Surgical Technologists, 1990.
4. Fuller, Joanna. *Surgical Technology: Principles and Practice.* Philadelphia: W. B. Saunders Co., 1986.
5. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.
6. *Practical Nursing.* Stillwater, OK: Curriculum and Instructional Materials Center (CIMC)/Oklahoma State Department of Vocational and Technical Education, 1992.

Suggested Supplemental Resources

1. *Blood Pressure*, 16 minutes. Presents methods and devices for blood pressure measurement.
2. *Temperature, Pulse, and Respirations*, 19 minutes. Covers techniques for taking and evaluating vital signs.

1 and 2 are available from:

Medcom/Trainex
PO Box 3225
Garden Cove, CA 92641
800-877-1443 or 714-891-1443

Suggested Activities

3. *Measuring Vital Signs*, 25 minutes. Demonstrates how to measure blood pressure, body temperature, pulse, and respiratory rate. Available from:

Insight Media
121 West 85th Street
New York, NY 10024
800-233-9910 or 212-721-6316

4. CPR booklets and other handouts. Available from:

American Heart Association
7320 Greenville Avenue
Dallas, TX 75231

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

**Related Nursing Procedures
Unit 3-B**

Answers to Student Supplement 1

1. Fingers, artery, one
2. 80-120
3. Systole
4. Diastole
5. Bradycardia
6. Hypertension
7. 110/70
8. 85
9. Blood pressure, temperature, pulse, respiration (in any order)
10. Pyrexia
11. Dyspnea
12. Brachial artery
13. Dorsalis pedis artery
14. Radial artery
15. 15-20
16. Rhythm
17. Cheyne-Stokes
18. Tachycardia
19. Hypotension
20.
 - a. 97.6° - 99°F
 - b. 36.4° - 37.2°C
 - c. 99.6°F
 - d. 37.5°C
 - e. 97.6°F
 - f. 36.4°C

**Related Nursing Procedures
Unit 3-B**

Answers to Assignment Sheets

Assignment Sheet 1

- A. 1. 97°F
2. 100.6°F
3. 104.2°F

- B. 1. 99.6°F



2. 99.2°F



3. 101.8°F



4. 103°F



Assignment Sheet 2

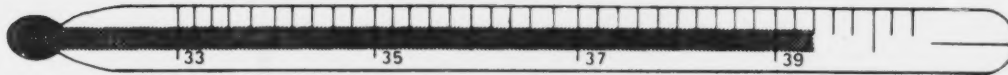
- A. 1. 37°C
2. 38.2°C
3. 36.6°C

- B. 1. 37.2°C



Answers to Assignment Sheets

2. 39.4°C



3. 38.6°C



4. 36.8°C



5. 38.2°C



Related Nursing Procedures Unit 3-B

Answers to Written Test

1. a. 14 e. 10 i. 2 m. 9
 b. 12 f. 5 j. 6 n. 8
 c. 15 g. 18 k. 11
 d. 7 h. 3 l. 4

2. a. S d. D g. D
 b. D e. R h. S
 c. M f. S i. S

3. a. T d. F g. F j. T
 b. T e. F h. T k. T
 c. F f. F i. T l. F

4. a. Electronic
 b. Mercury

5. a. Oral
 b. 99.6°F (37.5°C)
 c. 97.6°F (36.4°C)

6. a. Artery
 b. Sex or age
 c. Irregular
 d. Intermittent
 e. Accelerated
 f. Tachycardia
 g. Bradycardia
 h. Fingers

7. a. 2
 b. 5
 c. 3
 d. 4
 e. 1

8. a. Brachial
 b. Radial
 c. Femoral
 d. Temporal
 e. Carotid
 f. Apical

Answers to Written Test

9. a. 6 d. 2 g. 8 j. 11
 b. 5 e. 10 h. 12 k. 4
 c. 7 f. 1 i. 3
10. a. 2
 b. 3
 c. 4
 d. 1
11. Discussion should include: (in student's own words)
- a. Rate — Number of pulses, heartbeats, or respirations per minute
 - b. Rhythm — Regularity or irregularity of the pulse, heartbeat, or respirations
 - c. Quality — Volume; strength of pulses or respirations
12. a. 5 d. 6 g. 8
 b. 7 e. 2 h. 4
 c. 3 f. 1
13. Any seven of the following:
- a. Limbs
 - b. Organs
 - c. Bone
 - d. Tissues
 - e. Pus or fluid
 - f. Stones
 - g. Teeth
 - h. Foreign objects
 - i. Old scars
 - j. Aborted fetus
 - k. Frozen sections
 - l. Blood specimens
 - m. Implantables
14. a. F d. T g. T
 b. F e. F h. T
 c. T f. T
15. a. F d. T g. T
 b. T e. T
 c. F f. F

**Related Nursing Procedures
Unit 3-B**

Written Test

Name _____

Score _____

1. Match the terms on the right with the correct definitions.

- | | | |
|----------|--|-----------------------|
| _____ a. | Fever that alternately rises and drops, but which has no interval of normal body temperature | 1. Apical pulse |
| _____ b. | Difference between systolic and diastolic pressure | 2. Arrhythmia |
| _____ c. | The process of breathing; the inspiration and expiration of air involving the muscles of the chest and abdomen | 3. Blood pressure |
| _____ d. | Feverish; pertaining to a fever | 4. Bradycardia |
| _____ e. | Beat of the heart as felt through the walls of the arteries | 5. Diastolic pressure |
| _____ f. | Pressure at its lowest when the heart is relaxed | 6. Electrocardiogram |
| _____ g. | Heart rate consistently above normal | 7. Febrile |
| _____ h. | Force the blood exerts against an artery wall as the heart beats | 8. Hypothermia |
| _____ i. | Uneven intervals between pulse or heartbeats | 9. Intermittent fever |
| _____ j. | Record of electrical activity of the heart | 10. Pulse |
| _____ k. | Difference between pulse counts taken simultaneously at two sites, usually radial and apical pulses | 11. Pulse deficit |
| _____ l. | Abnormally slow heart rate | 12. Pulse pressure |
| _____ m. | Fever that alternates between elevated and normal or subnormal body temperatures | 13. Pyrexia |
| _____ n. | Below normal body temperature | 14. Remittent fever |
| | | 15. Respiration |
| | | 16. Sustained fever |
| | | 17. Systolic pressure |
| | | 18. Tachycardia |

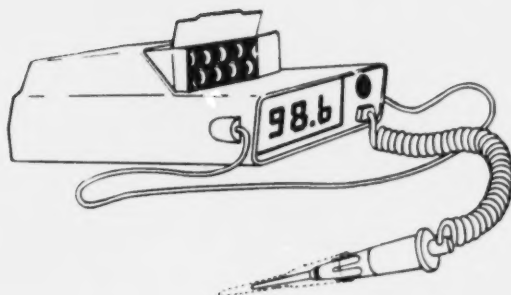
Written Test

2. Distinguish between normal and abnormal heart sounds by placing the following letters in the appropriate blanks: "S" for systole, "D" for diastole, "R" for reduplication of heart sounds, and "M" for murmurs.
- _____ a. Results from contraction of the ventricle, closure of the atrioventricular (bicuspid and tricuspid) valves, and impact of heart against chest wall
 - _____ b. Sound is short and high pitched — "dupp"
 - _____ c. Soft blowing or rasping sounds heard during systole, diastole, or both due to insufficient valves, aneurysms, a change in the blood constituents, or a roughening of the pericardial surfaces
 - _____ d. Results from closing of the aortic and pulmonary (semilunar) valves
 - _____ e. Sounds due to lack of synchronous action in the valves of both sides of the heart
 - _____ f. Sound is prolonged and dull — "lubb"
 - _____ g. Second sound of heartbeat
 - _____ h. First sound of heartbeat
 - _____ i. Synchronous with carotid pulse
3. Select true statements concerning characteristics of blood pressure by placing a "T" or "F" next to the true or false statements.
- _____ a. Is the pressure existing in the large arteries at the height of the pulse wave
 - _____ b. Is the pressure exerted by the blood on the wall of any vessel
 - _____ c. Is usually measured directly
 - _____ d. Measurement is recorded as figures separated by a slant with diastolic pressure recorded first.
 - _____ e. Is recorded with numbers that are multiples of ten only
 - _____ f. Normal blood pressure in the adult is 90/150.
 - _____ g. Systolic pressure exceeding 100 is considered abnormal.
 - _____ h. Diastolic pressure exceeding 90 is considered abnormal.

Written Test

- _____ i. Varies with age, sex, altitude, and muscular development
- _____ j. Systolic pressure rises during activity or excitement and falls during sleep.
- _____ k. Diastolic pressure depends on elasticity of arteries and peripheral resistance.
- _____ l. High blood pressure is called hypotension and low blood pressure is called hypertension.

4. Identify the following thermometers used to take patient's temperature.



- a. _____ b. _____

5. Complete the following chart of normal temperatures and the sites where they are taken.

TEMPERATURES	SITES
97.6°-99°F (36.4°-37.2°C)	a _____
b _____	Rectal
c _____	Axillary

Written Test

6. Complete the following statements concerning characteristics of pulse by filling in the blanks with the correct answers.

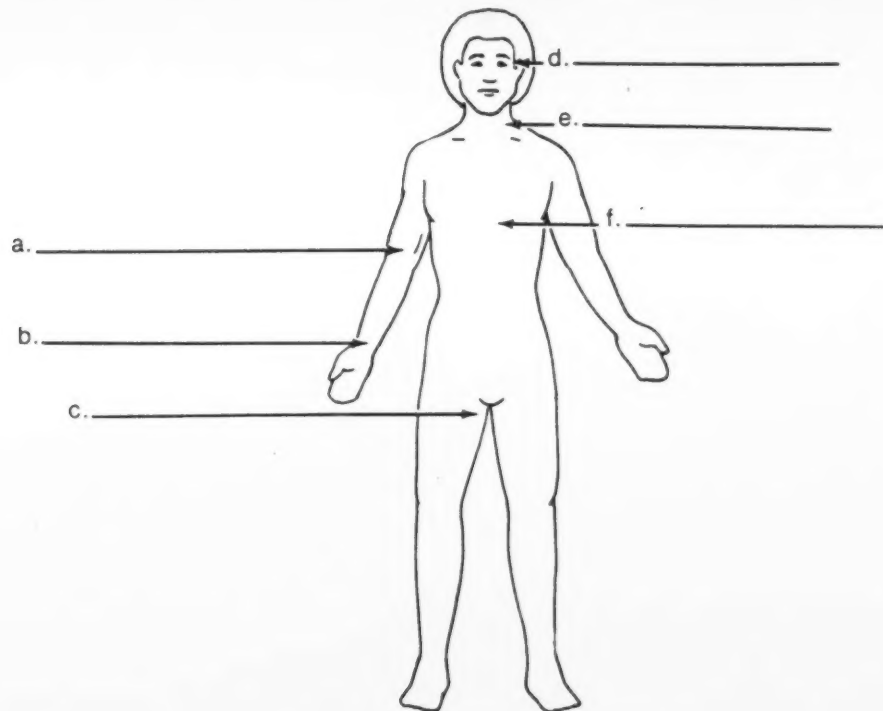
- a. Pulse is the throbbing caused by the regular contraction and expansion of _____.
- b. Normal pulse rates vary according to _____.
- c. _____ pulse is pulse that varies in force and frequency.
- d. _____ pulse is pulse that occasionally skips a beat.
- e. _____ pulse is a common symptom of all fevers.
- f. _____ is a heart rate (pulse) over 100 beats per minute.
- g. _____ is a heart rate (pulse) under 60 beats per minute.
- h. Pulse is taken by placing _____ over artery and counting for one minute.

7. Match average pulse rates on the right with their specific groups.

- | | |
|------------------------------------|-----------------------------|
| _____ a. Women | 1. 60-70 beats per minute |
| _____ b. Infants | 2. 72-80 beats per minute |
| _____ c. Children over age seven | 3. 72-90 beats per minute |
| _____ d. Children age one to seven | 4. 80-120 beats per minute |
| _____ e. Men | 5. 110-130 beats per minute |

Written Test

8. Identify the following sites for taking pulse.



9. Match terms related to respiration and breathing difficulties on the right with the correct definitions.

_____ a.	Refers to ordinary quiet respirations made without obvious effort	1. Anoxia
_____ b.	Painful, difficult, and labored breathing	2. Apnea
_____ c.	Increased rate and/or depth of respirations	3. Asphyxia
_____ d.	Cessation of breathing or lack of breathing	4. Cheyne-Stokes
_____ e.	Breathing possible only when person sits or stands in an erect position	5. Dyspnea
		6. Eupnea
		7. Hyperpnea

Written Test

- | | | |
|----------|--|-----------------|
| _____ f. | Lack of oxygen or absence of oxygen | 8. Hypoxia |
| _____ g. | Decreased amount of oxygen reaching the body cells | 9. Kussmaul |
| _____ h. | Any stoppage of respirations caused by strangulation, aspiration of foreign object, or drowning | 10. Orthopnea |
| _____ i. | Increased CO ₂ and decreased O ₂ in the body as a result of some interference with respiration | 11. Rales |
| _____ j. | Bubbling or rattling sounds caused by mucus in the air passages as in bronchitis or pneumonia | 12. Suffocation |
| _____ k. | Alternating cycles of hyperpnea and apnea, often seen in critically ill or unconscious patients | |
10. Match normal rates of respiration on the right with the correct age groups.
- | | | |
|----------|--------------------------|------------------------------|
| _____ a. | Children over age five | 1. 15-20 respirations/minute |
| _____ b. | Children age one to five | 2. 20-25 respirations/minute |
| _____ c. | Infants | 3. 20-40 respirations/minute |
| _____ d. | Adults | 4. 30-50 respirations/minute |
| | | 5. 50-75 respirations/minute |
11. Discuss the three criteria used when assessing pulse and respiration rates.
- a. _____
- _____

Written Test

- b. _____

c. _____

12. Match terms related to specimens on the right with the correct definitions.

- | | | |
|----------|---|-----------------------|
| _____ a. | Any tissue, fluid, or foreign body removed from a patient | 1. Frozen section |
| _____ b. | An aqueous solution of 37% formaldehyde with methanol added; commonly used as a preservative on specimens | 2. Smear |
| _____ c. | A substance used to harden and preserve specimens | 3. Fixative |
| _____ d. | A growth of living material and microorganisms in a prepared media | 4. Pathology |
| _____ e. | Material spread thinly on a surface such as a slide which can be studied microscopically | 5. Specimen |
| _____ f. | A piece of tissue or organ quickly frozen and then cut into a thin slice which can be studied microscopically | 6. Culture |
| _____ g. | Cells collected from one or both bronchi by irrigation | 7. Formalin |
| _____ h. | The study of diseases | 8. Bronchial washings |

13. List seven kinds of specimens.

- a. _____
b. _____
c. _____
d. _____

Written Test

- e. _____
- f. _____
- g. _____

14. Select true statements concerning the care and handling of specimens by placing a "T" or "F" next to the true or false statements.

- _____ a. Only those specimens requested by the surgeon need to be sent to the pathology department.
- _____ b. Care of the specimen is the sole responsibility of the surgical technologist.
- _____ c. Each specimen is kept separate.
- _____ d. A specimen is never put on a sponge.
- _____ e. The first thing to be put on tissue to be cultured is formalin.
- _____ f. Hand a specimen from the field in a basin, on a wrapper, or on a towel.
- _____ g. The care of specimens is regulated by hospital policy and rulings from the Joint Committee of Hospital Accreditation.
- _____ h. Each specimen must be labeled separately.

15. Select true statements concerning the special handling required for some specimens by placing a "T" or "F" next to the true or false statements.

- _____ a. Specimens to be cultured must be sent to the laboratory dry.
- _____ b. Cultures are obtained under sterile conditions.
- _____ c. When taking an anaerobic culture, always check the color of the solution in the bottom of the tube. If it is blue, discard it as this means oxygen is present in the tube.
- _____ d. Specimens to be frozen sectioned are placed in a labeled container without formalin and hand-carried to the pathology department.
- _____ e. Never leave an amputated limb lying on a specimen cart.
- _____ f. Bullets should only be handled with instruments.
- _____ g. Stones and teeth should be placed in a dry container and labeled.

*Permission to duplicate this test is granted.

439

**Related Nursing Procedures
Unit 3-B**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Read Fahrenheit Thermometers Rating _____

Comments: _____

Assignment Sheet 2—Read Centigrade Thermometers Rating _____

Comments: _____

Job Sheet 1—Obtain Oral Temperature Rating _____

Comments: _____

Job Sheet 2—Assess Radial Pulse Rating _____

Comments: _____

Job Sheet 3—Assess Apical Pulse Rating _____

Comments: _____

Job Sheet 4—Assess Apical/Radial Pulse Rating _____

Comments: _____

Unit Evaluation Form

Job Sheet 5—Assess Respirations

Rating _____

Comments: _____

Job Sheet 6—Obtain Blood Pressure Reading

Rating _____

Comments: _____

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____

Date _____

Student Signature _____

Date _____

*Permission to duplicate this form is granted.

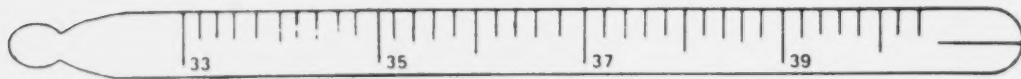
441

Common Thermometers

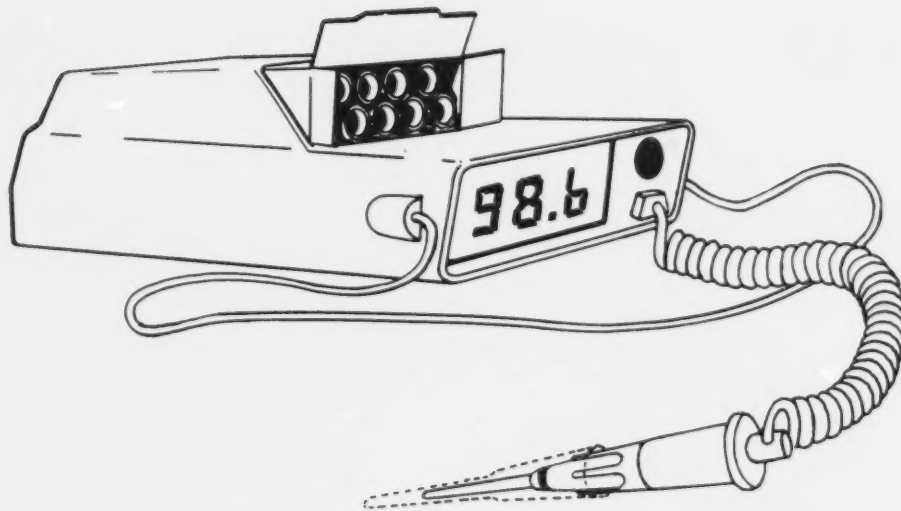
Fahrenheit



Centigrade



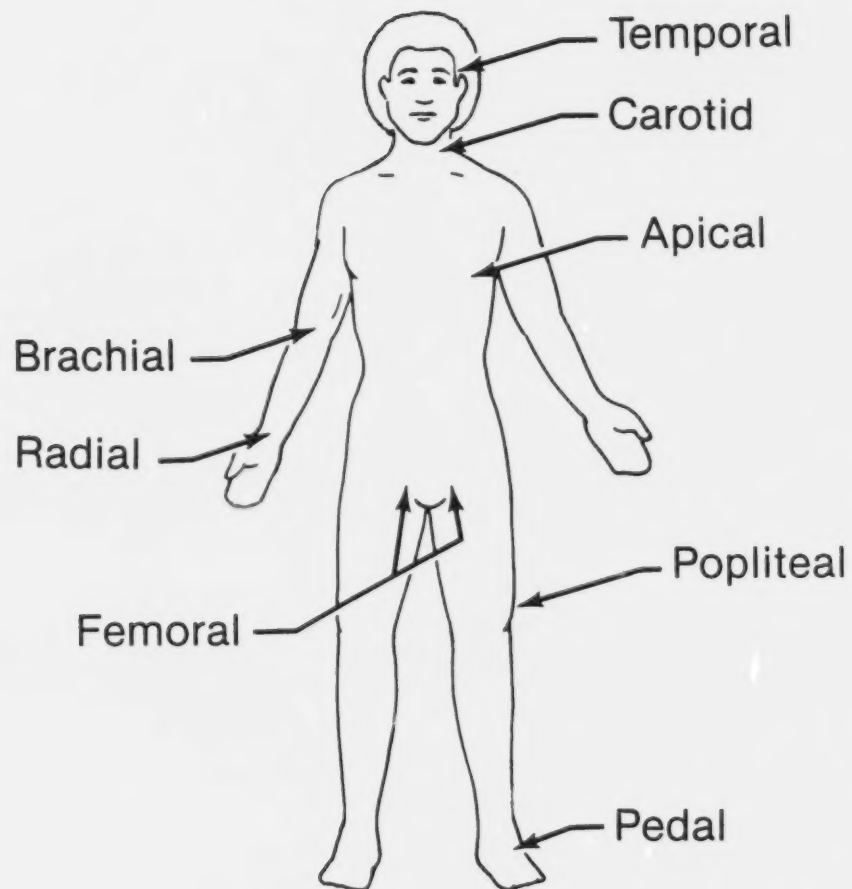
Mercury



Electronic

442

Pulse Sites



Related Nursing Procedures Unit 3-B

Information Sheet

1. Terms related to vital signs

Note: Vital signs include blood pressure (BP) and temperature, pulse, and respiration (TPR). These are commonly monitored by the circulator or the anesthesiologist.

a. Blood pressure

- (1) **Blood pressure** — Force the blood exerts against an artery wall as the heart beats
- (2) **Diastolic pressure** — Pressure at its lowest when the heart is relaxed
- (3) **Pulse pressure** — Difference between systolic and diastolic pressure

Example: 120 Systolic pressure
 - 80 Diastolic pressure
 40 Pulse pressure

- (4) **Systolic pressure** — Pressure at its peak during the contraction of the heart

b. Temperature

- (1) **Febrile** — Feverish; pertaining to a fever
- (2) **Hypothermia** — Below normal body temperature
- (3) **Intermittent fever** — Fever that alternates between elevated and normal or subnormal body temperatures
- (4) **Pyrexia** — Elevation of body temperature above normal
- (5) **Remittent fever** — Fever that alternately rises and drops, but which has no interval of normal body temperature
- (6) **Sustained fever** — Fever that remains elevated with little fluctuation

c. Pulse

- (1) **Apical pulse** — Heart rate counted at the apex of the heart by using a stethoscope
- (2) **Arrhythmia** — Uneven intervals between pulse or heartbeats

Information Sheet

- (3) **Bradycardia** — Abnormally slow heart rate (under 60 beats/minute)
 - (4) **Electrocardiogram (EKG or ECG)** — Record of electrical activity of the heart
 - (5) **Pulse** — Beat of the heart as felt through the walls of the arteries
 - (6) **Pulse deficit** — Difference between pulse counts taken simultaneously at two sites, usually radial and apical pulses
 - (7) **Tachycardia** — Heart rate consistently above normal (over 100 beats/minute)
- d. **Respiration** — The process of breathing; the inspiration and expiration of air involving the muscles of the chest and abdomen
2. **Normal and abnormal heart sounds**
- a. **Normal heart sounds**
- Note: These are the sounds needed to determine blood pressure readings.
- (1) **Systole**
 - (a) First sound of heartbeat
 - (b) Results from contraction of the ventricle, closure of the atrio-ventricular (bicuspid and tricuspid) valves, and impact of heart against chest wall
 - (c) Synchronous with carotid pulse
 - (d) Sound is prolonged and dull — "lubb"
 - (e) Followed by short pause
 - (2) **Diastole**
 - (a) Second sound of heartbeat
 - (b) Results from closing of the aortic and pulmonary (semilunar) valves
 - (c) Sound is short and high pitched — "dupp"
 - (d) Followed by longer pause before first sound is heard again

Information Sheet**b. Abnormal heart sounds****(1) Reduplication of heart sounds**

- (a) Sounds due to lack of synchronous action in the valves of both sides of the heart
- (b) Results from increased resistance in systemic or pulmonary circulation such as arteriosclerosis or emphysema

(2) Murmurs — Soft, blowing or rasping sounds heard during systole, diastole, or both due to insufficient valves, aneurysms, a change in the blood constituents, or a roughening of the pericardial surfaces**3. Characteristics of blood pressure**

- a. Is the pressure existing in the large arteries at the height of the pulse wave
- b. Is the pressure exerted by the blood on the wall of any vessel
- c. Is usually measured indirectly using a mercury-gravity or aneroid-manometer type of blood pressure apparatus and a stethoscope
- d. Measurement is recorded as figures separated by a slant with systolic pressure recorded first followed by diastolic pressure.

Example: 120/80
 systolic diastolic

- e. Is recorded with whole numbers
- f. Normal blood pressure in the adult is 120/80.
- g. Systolic pressure exceeding 140 is considered abnormal.
- h. Diastolic pressure exceeding 90 is considered abnormal.
- i. Varies with age, sex, altitude, and muscular development
- j. Systolic pressure rises during activity or excitement and falls during sleep.
- k. Diastolic pressure depends on elasticity of arteries and peripheral resistance (which depends on caliber of arterioles and capillaries).

Information Sheet

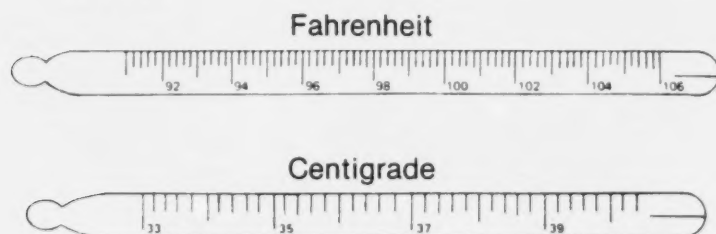
- l. High blood pressure is called hypertension.
- m. Low blood pressure is called hypotension.

4. Thermometers used to take patient's temperature

Note: These may be measured in centigrade (Celsius) or Fahrenheit, and may be used at various sites for oral, rectal, tympanic, or axillary temperature.

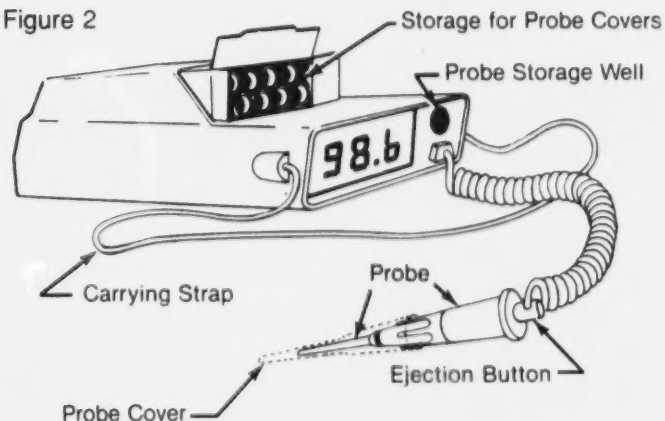
a. Mercury

Figure 1



b. Electronic

Figure 2



Information Sheet

5. Normal temperatures and the sites where they are taken

TEMPERATURES	SITES
97.6°-99°F (36.4°-37.2°C) Standard is 98.6°F	Oral
99.6°F (37.5°C)	Rectal
97.6°F (36.4°C)	Axillary

Note: Rectal temperatures average one degree higher than oral temperatures; axillary temperatures average one degree lower than oral. Tympanic electronic thermometer registers in less than 2 seconds. Readings are calibrated to correspond with either oral or rectal readings.

6. Characteristics of pulse

- a. Pulse is the throbbing caused by the regular contraction and expansion of an artery.
- b. Normal pulse rates vary according to sex and age.
- c. Irregular pulse is pulse that varies in force and frequency.
- d. Intermittent pulse is pulse that occasionally skips a beat.
- e. Accelerated pulse is a common symptom of all fevers.
- f. Tachycardia is a heart rate (pulse) over 100 beats per minute.
- g. Bradycardia is a heart rate (pulse) under 60 beats per minute.
- h. Pulse is taken by placing fingers (not thumb) over artery and counting for one minute.

7. Average pulse rates and their specific groups

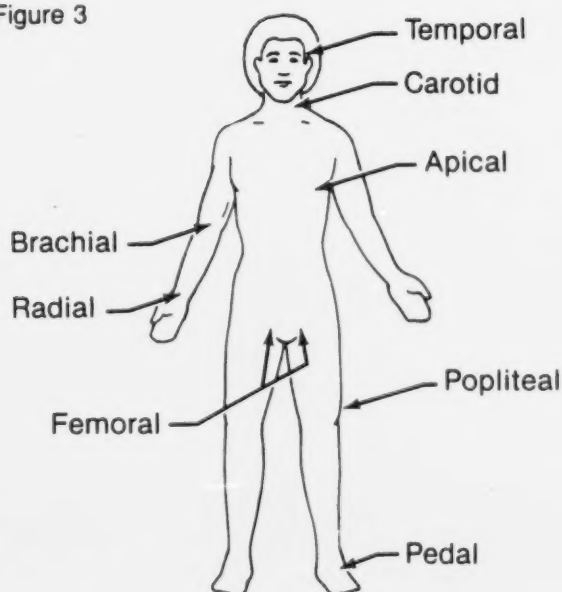
- a. Men — 60-70 beats per minute
- b. Women — 72-80 beats per minute
- c. Children over age seven — 72-90 beats per minute

Information Sheet

- d. Children age one to seven — 80-120 beats per minute
- e. Infants — 110-130 beats per minute

8. Sites for taking pulse

Figure 3



- a. Brachial artery (at the inner margin of the bend of the elbow)
- b. Radial artery (on the thumb side at the wrist)
- c. Femoral artery (in the groin area)
- d. Temporal artery (in front of the ear)
- e. Carotid artery (at the side of the neck)
- f. Apical pulse (over the heart)
- g. Popliteal artery (behind the knee)
- h. Dorsalis pedis artery (over the instep of the foot)

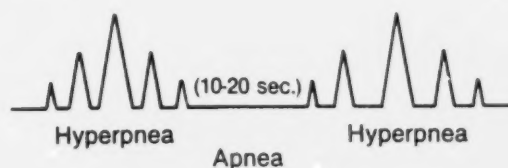
Note: This is commonly called the "pedal pulse."

Information Sheet

9. Terms related to respiration and breathing difficulties and their definitions

- a. **Anoxia** — Lack of oxygen or absence of oxygen
- b. **Apnea** — Cessation of breathing or lack of breathing
- c. **Asphyxia** — Increased CO_2 and decreased O_2 in the body as a result of some interference with respiration
- d. **Cheyne-Stokes** — Alternating cycles of hyperpnea and apnea, often seen in critically ill or unconscious patients

Figure 4



- e. **Dyspnea** — Painful, difficult, and labored breathing
- f. **Eupnea** — Refers to ordinary quiet respirations made without obvious effort
- g. **Hyperpnea** — Increased rate and/or depth of respirations
- h. **Hypoxia** — Decreased amount of oxygen reaching the body cells
- i. **Kusshmaul** — Very deep, gasping type of respiration associated with diabetic coma
- j. **Orthopnea** — Breathing possible only when person sits or stands in an erect position
- k. **Rales** — Bubbling or rattling sounds caused by mucus in the air passages as in bronchitis or pneumonia
- l. **Suffocation** — Any stoppage of respirations caused by strangulation, aspiration of foreign object, or drowning

Information Sheet

10. Normal rates of respiration

- a. Infants — 30-50 respirations per minute
- b. Children age one to five — 20-40 respirations per minute
- c. Children over age five — 20-25 respirations per minute
- d. Adults — 15-20 respirations per minute

11. Criteria used when assessing pulse and respiration rates

Note: It is very important when assessing pulse and respiration rates to consider the following criteria. Practice until you can pick up any abnormalities and state the information in a precise manner.

- a. Rate — Number of pulses, heartbeats, or respirations per minute

Note: Make sure that you are counting the full pulse or respirations for a full minute.

- b. Rhythm — Regularity or irregularity of the pulse, heartbeat, or respirations

Examples: Pulse skipping a beat, accelerated beats, slow respirations, hyperventilation (fast, shallow respirations)

- c. Quality — Volume; strength of pulses or respirations

Examples: Full, strong, weak, thready, bounding, whistling

12. Terms related to specimens

- a. **Bronchial washings** — Cells collected from one or both bronchi by irrigation
- b. **Culture** — A growth of living material and microorganisms in a prepared media
- c. **Fixative** — A substance used to harden and preserve specimens
- d. **Formalin** — An aqueous solution of 37% formaldehyde with methanol added; commonly used as a preservative on specimens
- e. **Frozen section** — A piece of tissue or organ quickly frozen and then cut into a thin slice which can be studied microscopically
- f. **Pathology** — The study of diseases

Information Sheet

g. **Smear** — Material spread thinly on a surface such as a slide which can be studied microscopically

h. **Specimen** — Any tissue, fluid, or foreign body removed from a patient

13. Kinds of specimens

a. Limbs

b. Organs

c. Bone

d. Tissues

e. Pus or fluid

f. Stones

g. Teeth

h. Foreign objects

Examples: Bullets, B.B.'s, swallowed objects

i. Old scars

j. Aborted fetus

k. Frozen sections

l. Blood specimens

m. Implantables

Examples: Screws, plates, prostheses

14. Care and handling of specimens

a. **All** tissues or foreign objects removed from a patient **must** be sent to the pathology department for legal documentation.

b. Proper care of each specimen is the responsibility of the total nursing team, and especially the surgical technologist while the specimen is in his/her possession.

c. The care of specimens is regulated by hospital policy and rulings from the Joint Committee of Hospital Accreditation.

Information Sheet

d. Care of the specimen while in the possession of the surgical technologist:

- (1) After a specimen is removed, always place it in a pan or medicine glass with a small amount of sterile normal saline. This will prevent the specimen from drying out before it can be appropriately cared for.
- (2) Keep each specimen separate.
- (3) If not enough containers are on the back table, ask for more.
- (4) **Never** put a specimen on a sponge.

Note: This procedure would confuse the sponge count.

- (5) Make certain that small specimens are not crushed by clamping as this makes tissue identification very difficult.
- (6) **Never** place formalin on stones, teeth, limbs, or tissue to be cultured or frozen sectioned.
- (7) Keep handling of tissue specimens to a minimum.
- (8) Keep the specimen basin on the field until you are certain all tissue has been removed or all contaminated items are in it.
- (9) Hand a specimen from the field in a basin, on a wrapper, or on a towel.
- (10) Keep specimen until you can get the circulator's attention. Then give to the circulator one at a time so they are correctly identified.
- (11) If you are unsure as to what the specimen is, ask the surgeon to identify it.

e. Handling and labeling of the specimen by the circulator:

- (1) After receiving the specimen from the scrub person, the circulator's responsibility is to prepare and label the specimen to be sent to the laboratory.
- (2) A specimen container will be selected that is large enough for the specimen to be easily removed in the laboratory, as tissues enlarge or swell in formalin.
- (3) Formalin will **never** be placed on stones, teeth, limbs, or tissue scheduled for cultures or frozen sections.

Information Sheet

- (4) All instruments, sponges, and/or needles will be removed from the specimen before sending it out of the room.
- (5) The appropriate label and laboratory form will be attached to the specimen container.

Note: The exact method will vary according to hospital procedure.

- (6) Each specimen must be labeled separately.
- (7) Hands will always be washed after handling the specimen to avoid contamination.

15. Special handling required for some specimens

a. Cultures

- (1) Must be sent to the laboratory immediately before they dry. If the specimen dries, it is no good.
- (2) Are obtained under sterile conditions. The tips of the swabs must not be contaminated by any other source.
- (3) Always label the culture tube and complete the laboratory form including the source of the specimen.

Note: If the source of the specimen is the surgical wound, state the location.

- (4) When taking an anaerobic culture, always check the color of the solution in the bottom of the tube. If it is pink, discard it as this means oxygen is present in the tube.
- (5) The swab must be replaced in the tube as quickly as possible after taking an anaerobic culture to prevent air from entering the culture tube.

b. Frozen sections

- (1) Fill out specimen card as completely as possible.
 - (a) Include the operating room intercom number on the specimen card so the pathologist can report the results to the surgeon.
 - (b) Alert the pathologist if the patient is under a local anesthetic so the report can be shown to the surgeon rather than using the intercom, which could be heard by the patient.

Information Sheet

- (2) Place the specimen in a labeled container **without** formalin. It will be hand-carried to the pathology department by a member of the OR staff.
- (3) Always give the specimen to the pathologist. Never just set it on the shelf or cart.
- c. Amputated limbs
 - (1) Patient should have signed a consent form for disposal of the limb.
 - (2) Remove all drapes and instruments from the limb.
 - (3) Wrap adequately with proper drape and place in plastic bag.
 - (4) Attach label and specimen card and take to laboratory.
 - (5) Never leave an amputated limb lying on a specimen cart.
- d. Bullets and other foreign objects
 - (1) Always follow hospital policy which is written according to individual state laws.
 - (2) In some states, bullets are given to the medical examiner or police officer. In other states bullets are given to the pathologist.
 - (3) Handle the object by hand, not with an instrument, as this could mar the object.
 - (4) Place in specimen container. Fixative is not needed.
 - (5) Record on operative record who received the object and the time.
- e. Stones or teeth
 - (1) Place in dry container and label.
 - (2) Always send to laboratory for gross examination, prior to giving them to the patient or surgeon.

Related Nursing Procedures
Unit 3-B

Student Supplement 1—Review Concepts About Vital Signs

Name _____ Date _____

Directions: Using the information sheet, complete the following statements.

1. The pulse is taken by placing _____ over the _____ and counting for _____ minute(s).
2. Children age one to seven have a pulse rate of approximately _____ beats per minute.
3. The first sound of the heartbeat is _____.
4. The second sound of the heartbeat is _____.
5. An abnormally slow heart rate is known as _____.
6. High blood pressure is called _____.
7. How would you record a blood pressure reading with a diastolic pressure of 70 and a systolic pressure of 110? _____
8. If you have a systolic pressure of 145 and a diastolic pressure of 60, what is the pulse pressure? _____
9. Vital signs include _____, _____, _____, and _____.
10. The elevation of body temperature above normal is known as _____.
11. Painful, difficult, and labored breathing is known as _____.
12. The inner margin of the bend of the elbow is the _____ site for taking a pulse.
13. The instep of the foot is the _____ site for taking a pulse.
14. The thumb side at the wrist is the _____ site for taking a pulse.
15. The normal rate of respiration for adults is _____ respirations per minute.

Student Supplement 1

16. When assessing pulse and respiration, the regularity or irregularity is known as the _____.
17. Alternating cycles of hyperpnea and apnea, often seen in critically ill or unconscious patients, is known as _____.
18. A heart rate consistently above normal (over 100 beats/minute) is known as _____.
19. Low blood pressure is called _____.
20. Complete the following chart on normal temperatures taken at different sites.

TEMPERATURES	SITES
(a) _____ °F (b) _____ °C	Oral
(c) _____ °F (d) _____ °C	Rectal
(e) _____ °F (f) _____ °C	Axillary

Related Nursing Procedures Unit 3-B

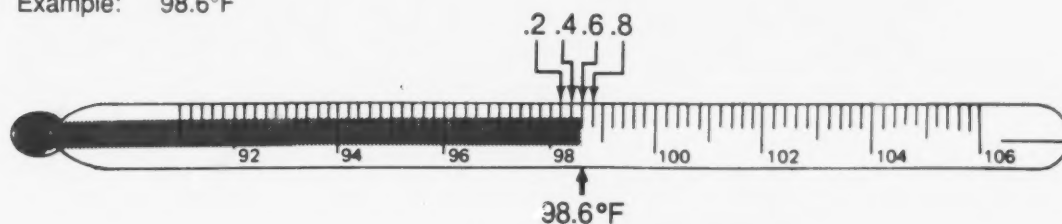
Assignment Sheet 1—Read Fahrenheit Thermometers

Name _____ Overall Rating _____

Evaluation criteria	Rating
Thermometer readings are correct	_____
Readings are accurately recorded including decimals and °F notation	_____
Thermometer drawings are accurate	_____

Directions: Hold the thermometer at eye level. Rotate thermometer until you can clearly see column of mercury. Observe markings called calibrations on the scale which is at upper side of the column of mercury. Each of the long lines represents a full degree and the four short lines represent two-tenths of a degree. Only even-numbered degrees are named on a Fahrenheit clinical thermometer, that is 96°, 98°, 100°, and so on. If mercury column ends at one of the short lines, look to see which long line is immediately left. That will tell you the degree of temperature. Add the short lines representing two-tenths to the previous degree to arrive at your answer.

Example: 98.6°F



A. Write these thermometer readings in the blanks provided.

1. _____



Assignment Sheet 1

2. _____

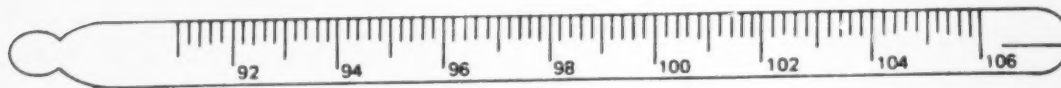


3. _____

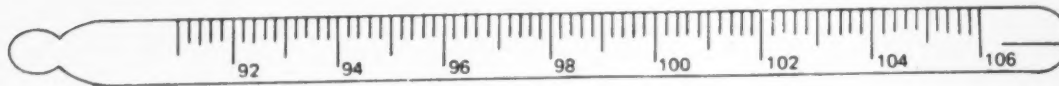


B. Draw the required temperature readings on the thermometers below.

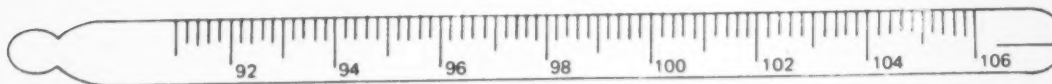
1. 99.6°F



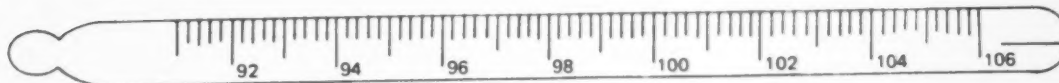
2. 99.2°F



3. 101.8°F



4. 103°F



Related Nursing Procedures
Unit 3-B

Assignment Sheet 2—Read Centigrade Thermometers

Name _____ Overall Rating _____

Evaluation criteria	Rating
Thermometer readings are accurate	_____
Readings are accurately recorded including decimals and °C notation	_____
Thermometer drawings are accurate	_____

Directions: Observe calibrations on the centigrade (Celsius) thermometer. Each of the long lines represents a full degree and each short line represents two-tenths of a degree. Only odd-numbered degrees are indicated by number on the centigrade clinical thermometer.

Note: The average normal temperature is 37°C.

A. Write the temperature readings of the thermometers below in the blanks provided.

1. _____



2. _____



3. _____



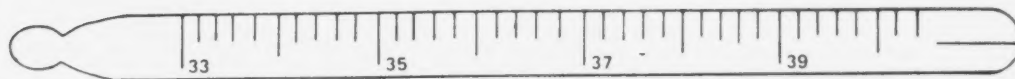
Assignment Sheet 2

B. Draw the required temperature readings on these thermometers.

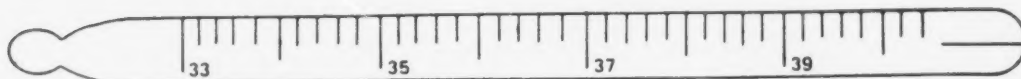
1. 37.2°C



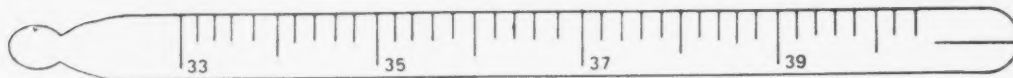
2. 39.4°C



3. 38.6°C



4. 36.8°C



5. 38.2°C



Related Nursing Procedures
Unit 3-B

Job Sheet 1—Obtain Oral Temperature

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Performed steps of the procedure correctly	_____
Obtained an accurate reading	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Mercury-type thermometer or electronic thermometer
Watch with second hand
Paper and pencil
Clean tissue
Thermometer sheaths
Antiseptic wipes

B. Procedure for mercury-type thermometer

- ☐ 1. Assemble equipment and take to bedside.
- ☐ 2. Wash hands.
- ☐ 3. Identify patient and explain procedure.

Caution: Wait 15 minutes to take temperature if patient has recently taken hot or cold drink or is smoking.

- ☐ 4. Remove thermometer from container, holding near the end opposite mercury bulb. Shake mercury down to 95° or below.
- ☐ 5. Put clean protective sheath on thermometer.

Job Sheet 1

- ☐ 6. Place mercury bulb under patient's tongue. Ask patient to keep lips closed without biting thermometer. Leave thermometer in place for three minutes. Remain with patient if necessary.
- ☐ 7. Remove thermometer and discard protective sheath.
- ☐ 8. Read thermometer and record reading on paper immediately.
- ☐ 9. Recheck temperature, if indicated.
- ☐ 10. Care for thermometer:
 - ☐ a. Shake mercury down.
 - ☐ b. Clean thermometer with antiseptic wipe starting from the top of the stem and working toward the bulb using a twisting motion. Place thermometer in antiseptic solution for appropriate time.

Note: Use institution's procedure for cleaning thermometer.
 - ☐ c. Replace equipment in designated area.
- ☐ 11. Wash hands.
- ☐ 12. Report any deviation from usual temperature to supervisor/instructor.

C. Procedure for electronic thermometer

- ☐ 1. Wash hands.
- ☐ 2. Assemble equipment.
- ☐ 3. Activate electronic thermometer according to instructions.
- ☐ 4. Put clean protective sheath on thermometer.
- ☐ 5. Place tip of probe under patient's tongue for required length of time.
- ☐ 6. Record temperature on paper when machine signals that procedure is completed.
- ☐ 7. Remove thermometer and discard protective sheath.
- ☐ 8. Recheck temperature, if indicated.
- ☐ 9. Replace equipment in designated area.

Job Sheet 1

- ☐ 10. Wash hands.
- ☐ 11. Report any deviation from usual temperature to supervisor/instructor.

Evaluator's comments: _____

**Related Nursing Procedures
Unit 3-B**

Job Sheet 2—Assess Radial Pulse

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Placed appropriate fingers over site of radial artery	_____
Followed steps of procedure	_____
Obtained accurate reading	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Watch with second hand
Pen and paper or chart

B. Procedure

- ☐ 1. Assemble supplies and equipment.
- ☐ 2. Wash hands.
- ☐ 3. Identify patient and explain procedure.
- ☐ 4. Determine patient's activity prior to assessment of pulse.
- ☐ 5. Place patient's wrist in a relaxed, well-supported position with wrist extended and palm down.
- ☐ 6. Place tips of first two fingers over radial artery on thumb side of wrist, exerting slight pressure until pulse is felt.

Note: Do not use your thumb as it has a pulse of its own that will be confusing and cause inaccurate pulse reading.

Job Sheet 2

- ☐ 7. Locate pulse, hold, and count for one full minute using the second hand on your watch.

Figure 1



- ☐ 8. Assess regularity or irregularity of pulse.
Examples: Same pattern repeats or pattern is variable.
- ☐ 9. Assess volume or strength of pulse.
Examples: Weak, bounding, strong
- ☐ 10. Assist patient in resuming comfortable position of arm.
- ☐ 11. Wash hands.
- ☐ 12. Record pulse accurately.

Evaluator's comments: _____

Related Nursing Procedures **Unit 3-B**

Job Sheet 3—Assess Apical Pulse

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria

Rating

Placed stethoscope in correct position
Followed steps of procedure correctly
Obtained accurate reading

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Stethoscope
Alcohol swabs
Watch with second hand
Pen and paper

B. Procedure

- ☐ 1. Obtain supplies and equipment.
- ☐ 2. Wash hands.
- ☐ 3. Identify and explain procedure to the patient.
- ☐ 4. Provide privacy for patient.
- ☐ 5. Clean earpieces and diaphragm of stethoscope with alcohol swabs.
- ☐ 6. Place patient in supine or sitting position.
- ☐ 7. Remove linens or clothing to expose the left side of chest.
- ☐ 8. Warm the stethoscope diaphragm by holding it against the palm of your hand for a few seconds.

Job Sheet 3

- ☐ 9. Place stethoscope on the chest to the left of the sternum and below the nipple.

Figure 1



- ☐ 10. Listen for the sound of the heart.
Note: The "lubb-dupp" double sound is one beat.
- ☐ 11. Count the apical pulse rate for one full minute using the second hand on watch for time.
- ☐ 12. Assess regularity or irregularity of apical pulse.
Examples: Same pattern repeats or pattern is variable.
- ☐ 13. Assess volume of apical pulse.
Examples: Weak, strong, bounding
- ☐ 14. Replace clothing and bedding and assist patient to comfortable position.
- ☐ 15. Record accurately.
- ☐ 16. Clean earpieces and diaphragm of stethoscope with alcohol swabs.
- ☐ 17. Wash hands.
- ☐ 18. Put away equipment.

Evaluator's comments: _____

Related Nursing Procedures Unit 3-B

Job Sheet 4—Assess Apical/Radial Pulse

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Placed fingers correctly on radial artery	_____
Placed stethoscope over heart apex correctly	_____
Followed steps of procedure correctly	_____
Obtained an accurate pulse assessment	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Stethoscope
Alcohol swabs
Watch with second hand
Pen and paper
Assistant

B. Procedure

- ☐ 1. Obtain supplies and equipment.
- ☐ 2. Wash hands.
- ☐ 3. Enlist the help of an assistant.
- ☐ 4. Identify and explain the procedure to the patient.
- ☐ 5. Provide privacy for the patient.
- ☐ 6. Clean earpieces and diaphragm of stethoscope with alcohol swabs.
- ☐ 7. Place patient in supine position with wrist extended and palm down in relaxed position.
- ☐ 8. Remove linens or clothing to expose the left side of the chest.

Job Sheet 4

- ☐ 9. Warm the stethoscope diaphragm against palm of hand.
- ☐ 10. Place stethoscope on the chest to the left of the sternum and below the nipple until apical pulse is **heard**.
- ☐ 11. Assistant should place tips of first two fingers over radial artery on thumb side of wrist, exerting slight pressure until pulse is **felt**.

Note: Do not use your thumb as it has a pulse of its own that will be confusing and cause an inaccurate pulse reading.

- ☐ 12. On signal, using the same watch/clock, both begin counting pulses for one minute.
- ☐ 13. Replace clothing and linens and assist patient to comfortable position.
- ☐ 14. Record accurately both pulses.

Note: Apical and radial rates should be the same. A variation of a few beats due to human error is possible. Any larger difference is called a pulse deficit and should be reported.

- ☐ 15. Clean earpieces and diaphragm of stethoscope with alcohol swabs.
- ☐ 16. Wash hands.
- ☐ 17. Put away equipment.

Evaluator's comments: _____

**Related Nursing Procedures
Unit 3-B**

Job Sheet 5—Assess Respirations

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Rate obtained within two respirations of instructor	_____
Followed correct procedure	_____
Observed patient correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Watch with second hand
Pen and paper

B. Procedure

- ☐ 1. Obtain supplies and equipment.
- ☐ 2. Wash hands.
- ☐ 3. Identify and explain procedure to patient.
- ☐ 4. Provide patient privacy.
- ☐ 5. Assist patient to assume the supine or sitting position.
- ☐ 6. Remove clothing and linens from chest.
- ☐ 7. Look for symmetry of chest.
- ☐ 8. Observe movements of chest and abdomen.
- ☐ 9. Listen for noises associated with respiration.
- ☐ 10. Observe effect of position on respirations of patient.

Job Sheet 5

- ☐ 11. Count respirations for one full minute.
- ☐ 12. Replace clothing and linens and assist patient to comfortable position.
- ☐ 13. Record respirations accurately.
- ☐ 14. Wash hands.

Evaluator's comments: _____

**Related Nursing Procedures
Unit 3-B**

Job Sheet 6—Obtain Blood Pressure Reading

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Chose correct cuff size	_____
Placed cuff correctly	_____
Placed stethoscope correctly	_____
Followed procedure correctly	_____
Obtained reading within 5 mm Hg of instructor	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Materials and equipment

Sphygmomanometer (Mercury, aneroid, or electronic)
Stethoscope
Alcohol swabs
Pen and paper or chart

B. Procedure

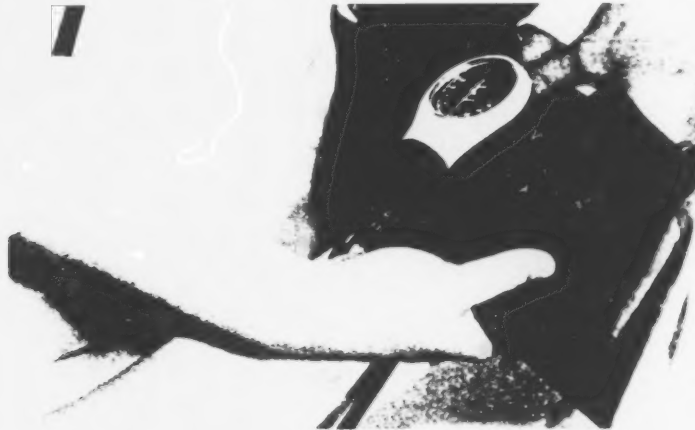
Note: If using electronic blood pressure indicator, use manufacturer's instructions.

- ☐ 1. Assemble equipment.
- ☐ 2. Wash hands.
- ☐ 3. Identify patient and explain procedure.
- ☐ 4. Clean earpieces and diaphragm of stethoscope with alcohol swab.
- ☐ 5. Determine appropriate cuff size to fit patient.
- ☐ 6. Provide patient privacy.
- ☐ 7. Remove clothing that may interfere with cuff placement.
- ☐ 8. Place arm with palm up and forearm well-supported at heart level.

Job Sheet 6

- ☐ 9. Place deflated cuff securely around arm with lower edge 1 inch above antecubital area.
- ☐ 10. Position gauge of aneroid cuff where it can be easily seen.

Figure 1



- ☐ 11. Place earpieces of stethoscope in your ears. Tighten screw on rubber bulb of sphygmomanometer.

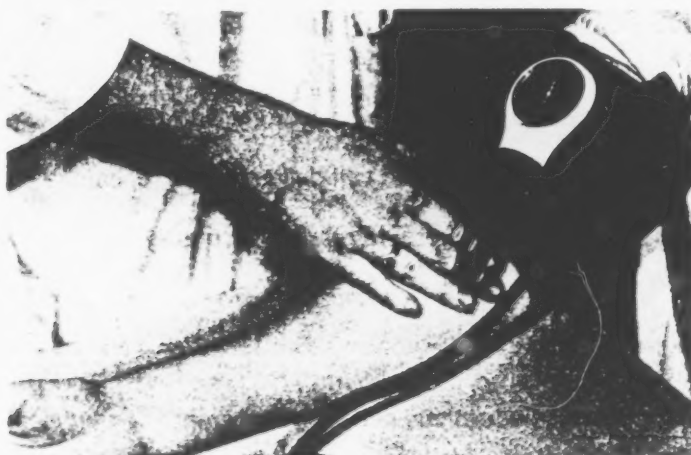
Figure 2



Job Sheet 6

- ☐ 12. Locate brachial artery pulse with fingertips and place diaphragm of stethoscope over pulse beat.

Figure 3



- ☐ 13. Inflate cuff by squeezing bulb until pulse ceases; then inflate cuff 20 points higher.

Figure 4



- ☐ 14. Open valve (thumb screw), slowly releasing air until thumping sound is clear.

Job Sheet 6

- ☐ 15. Observe and remember the number where the first strong sound is heard; this is the systolic pressure.
- ☐ 16. Continue to listen while releasing air gradually from cuff.
- ☐ 17. Observe and remember the number where sound changes or ceases; this is the diastolic pressure.
- ☐ 18. Allow air to escape so pressure falls to zero.
- ☐ 19. Wait one minute with cuff deflated; then repeat the procedure.
- ☐ 20. Record blood pressure reading accurately.
- ☐ 21. Clean earpieces of stethoscope with alcohol swabs.
- ☐ 22. Wash hands.
- ☐ 23. Replace equipment in designated area.

Evaluator's comments: _____

Care of Pediatric Patients Unit 4-B

Objective Sheet

Unit Objective

After completing this unit, the student should be able to complete statements concerning the special considerations in caring for pediatric patients and common surgical procedures performed on pediatric patients. The student should demonstrate these competencies by completing the assignment sheet and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to care of pediatric patients with their correct definitions.
2. State the correct ages for the stages of pediatric development.
3. Complete statements concerning the assessment of newborns.
4. List the four major reasons for pediatric surgery.
5. Select true statements concerning hospitalization and its effects on the pediatric patient.
6. Select true statements concerning vital signs of the pediatric patient.
7. Select true statements concerning special considerations in caring for the pediatric patient.
8. Complete statements concerning common surgical procedures performed on pediatric patients.
9. Determine Apgar scores for selected newborns. (Assignment Sheet 1)

Care of Pediatric Patients Unit 4-B

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
5. Develop teaching plan. Adjust for different learning styles.
6. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

7. Provide students with unit of instruction.
8. Discuss unit and specific objectives.
9. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
10. Discuss the assignment sheet. Review criteria for evaluation of this activity.

Evaluation

11. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
12. Make copies of the written test. Add or modify test items as needed.
13. Give written test.
14. Compile assignment sheet rating and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.

Suggested Activities

15. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Invite specialists in pediatric surgery to talk to the class about recent advances in the field. Have students prepare questions beforehand that they can ask the guest speaker. Preparing and asking questions helps to reinforce their **writing foundation skills** and **communication skills**.
2. Show videos dealing with the care of the pediatric patient. This activity will enhance **listening communication skills**.
3. Display the specialty instruments involved in pediatric surgical procedures. Discuss the use and possible instrument substitutions. This activity will reinforce **adaptability skills** needed when some instruments may not be available.
4. Show slides of congenital anomalies which will be corrected in surgery. This activity will enhance **listening skills**, **creative thinking skills**, and **problem solving skills**.
5. Demonstrate positioning and draping of a pediatric patient showing padding of pressure points, wrapping of extremities to keep the patient warm, and proper drapes to use for pediatric patients. This activity will enhance **influence skills**, **personal management skills**, and **communication skills**.
6. Tour a pediatric facility with your students. This can show the students the type of setting used for pediatric care and the interaction between the patients and staff. This activity will enhance **influence skills**, **group effectiveness skills**, **personal management skills**, **adaptability skills**, and **communication skills**.

Resources Used in Developing This Unit

1. Atkinson, Lucy Jo. *Berry and Kohn's Introduction to Operating Room Technique*, 7th ed. St. Louis: Mosby-Year Book, Inc., 1992.
2. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Saunders, 1986.
3. Hamilton, Persis Mary. *Basic Pediatric Nursing*, 6th ed. St. Louis: Mosby-Year Book, Inc., 1991.

Suggested Activities

4. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby-Year Book, Inc., 1991.
5. Pratt, Paulette and Ellen Sarewitz. *Surgery on File*. New York: Facts on File/Surgery on File, Inc., 1988.

Suggested Supplement Resources

1. *Children and Cancer*. Overview of common cancers that affect children: leukemia, brain tumors, lymphomas, neuroblastoma. Explains tests and treatments. 19 minutes. #FM-1403.
2. *Leukemia*. Bone marrow transplants and techniques for treating the illness. 19 minutes. #FM-3144.
3. *New Hearts For Sick Kids*. A 1½ year old with hypoplastic heart syndrome. The parents select transplantation. 19 minutes. #FM-3171.
4. *Transplantation In Children*. Organ donors for children. 20 minutes. #FM-2529.
5. *Repairing Birth Defects*. Program deals with clubfoot, cleft palate, webbed digits, asymmetric head shape. Explains surgical procedures. 26 minutes. #FM-2362.

1 - 5 are available from:

Films for the Humanities and Sciences
Box 2053
Princeton, NJ 08543-2053
800-257-5126 or 609-452-1128

6. *Care of HIV—Infected Children*. Emphasize observance of Universal Precautions. 28 minutes. #78523.
7. *Neurological Assessment of the Pediatric Patient*. Describes basic neurological exam for infants and children. 28 minutes. #78515.
8. *Examination of the Newborn*. Demonstrates the Apgar, Ballard, and physical examinations and results. 50 minutes. #4522.
9. *Giving Your Child a Smile: Correcting Cleft Lips and Palates*. Explains how cleft lips and palates occur and how they are corrected. 23 minutes. #78010.

Suggested Activities

10. *Advanced Training For Operating Room Clinical Specialties: The Pediatric Surgery Series.* OR 1000-M (3).

6 - 10 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Cove, CA 92641
800-877-1443 or 714-891-1443

11. *Resection of a Sacrococcygeal Teratoma in a Newborn,* 1990. Actual surgical procedure. 7 minutes. ACS-1609.
12. *Intraabdominal Resection For Hirschsprung's Disease.* Technique demonstrated in a 10-week old male infant. 1991. ACS-1632.
13. *Preparing Children For Surgery.* Numerous techniques that aid in preparing a pediatric patient for surgery. 18 minutes. 1991. DG-1699.
14. *I'm Not a Small Adult—Nursing Care of the Pediatric Patient in Surgery.* 27 minutes. 1970. DG-1066.

11 - 14 are available from:

Cine-Med Distribution Center
Davis + Geck Video Library
P.O. Box 745
Woodbury, CT 06898
800-633-0004

**Care of Pediatric Patients
Unit 4-B**

Answers to Assignment Sheet 1

Assignment Sheet 1

Newborn 1:

- a. 0
- b. 1
- c. 1
- d. 2
- e. 0
- f. 4

Newborn 2:

- a. 1
- b. 2
- c. 2
- d. 1
- e. 1
- f. 7

Newborn 3:

- a. 2
- b. 2
- c. 2
- d. 2
- e. 2
- f. 10

Newborn 4:

- a. 2
- b. 1
- c. 1
- d. 2
- e. 2
- f. 8

- | | | |
|----|----------------|----------|
| 1. | Newborn 3 or 4 | score 2 |
| 2. | Newborn 1 | score 0 |
| 3. | Newborn 3 | score 10 |
| 4. | Newborn 1 | score 4 |

Care of Pediatric Patients **Unit 4-B**

Answers to Written Test

1. a. 11 e. 5 i. 13
 b. 7 f. 10 j. 8
 c. 2 g. 4 k. 1
 d. 9 h. 3

2. a. In utero
 b. Birth to 28 days
 c. 28 days to 18 months
 d. 1½ to 2½ years
 e. 2½ to 5 years
 f. 6 to 12 years
 g. 12 to 17 years

3. a. Any one of the following: Respiratory disorders, neurological disorders, or thermal disorders
 b. Higher
 c.

Sign	0	1	2
Color	<u>Blue</u> <u>Pale</u>	Body Pink, Extremities Blue	<u>Completely</u> <u>Pink</u>
<u>Heart</u> <u>Rate</u>	Absent	<u>Below 100</u> <u>beats per minute</u>	<u>Over 100</u> <u>beats per minute</u>
Respiratory Rate	Absent	<u>Irregular</u>	<u>Good,</u> <u>crying</u>
<u>Muscle</u> <u>Tone</u>	<u>Limp</u>	Some flexion of extremities	Active motion
Reflex Irritability	None	<u>Grimace</u>	<u>Cough,</u> <u>Sneeze</u>

4. a. Congenital anomalies
 b. Disease
 c. Trauma
 d. Aspiration/Ingestion of foreign objects

Answers to Written Test

- | | | | | | | | | |
|----|----|---|----|---|----|---|----|---|
| 5. | a. | T | | | | | | |
| | b. | F | | | | | | |
| | c. | T | | | | | | |
| 6. | a. | F | d. | T | g. | T | j. | T |
| | b. | F | e. | T | h. | F | k. | T |
| | c. | T | f. | F | i. | T | | |
| 7. | a. | T | d. | T | g. | F | j. | T |
| | b. | T | e. | T | h. | F | k. | F |
| | c. | F | f. | T | i. | T | l. | T |
| 8. | a. | 2 | e. | 3 | i. | 3 | m. | 1 |
| | b. | 4 | f. | 3 | j. | 1 | n. | 1 |
| | c. | 4 | g. | 1 | k. | 2 | | |
| | d. | 1 | h. | 2 | l. | 4 | | |

**Care of Pediatric Patients
Unit 4-B**

Written Test

Name _____

Score _____

1. Match the terms on the right with their correct definitions by writing the correct numbers on the blanks provided.

- | | | |
|----------|--|-----------------------------|
| _____ a. | Narrowing or constriction of a passage or orifice | 1. Acquired disease process |
| _____ b. | Death of a fetus after 20 weeks of gestation and before delivery, regardless of gestational age, with no signs of life following birth | 2. Analgesia |
| _____ c. | Absence of normal sense of pain | 3. Anastomosis |
| _____ d. | Baby born before 38 weeks of gestation regardless of birth weight | 4. Apgar |
| _____ e. | Imperforation or closure of a normal, tubular opening of the body | 5. Atresia |
| _____ f. | Generalized fear reaction to separation from significant others | 6. Congenital defect |
| _____ g. | Assessment scoring system for newborns | 7. Fetal death |
| _____ h. | Union of parts so as to inter-communicate | 8. Pediatrics |
| _____ i. | Baby born at 38 or more gestational weeks | 9. Premature |
| _____ j. | Branch of medicine dealing with the development, care, and diseases of children | 10. Separation anxiety |
| _____ k. | Disease or condition not hereditary or innate | 11. Stenosis |
| | | 12. Strabismus |
| | | 13. Term |
| | | 14. Trauma |

Written Test

2. State the correct ages for the stages of pediatric development.

- a. Fetus — _____
- b. Newborn — _____
- c. Infant — _____
- d. Toddler — _____
- e. Preschool — _____
- f. School Age — _____
- g. Adolescent — _____

3. Complete the following statements and chart concerning the assessment of newborns.

- a. Newborns are evaluated to determine if they are at risk for _____.
- b. The Apgar scoring system is the most common initial assessment system used to evaluate newborns. The pediatrician or examiner assigns a score for each characteristic. The _____ the score, the more mature the newborn.
- c. Complete the following Apgar scoring chart.

Sign	0	1	2
Color	_____	Body Pink, Extremities Blue	_____
_____	Absent	_____	Over 100 beats per minute
Respiratory Rate	Absent	_____	_____
_____	_____	Some flexion of extremities	Active motion
Reflex Irritability	None	_____	_____

Written Test

4. List the four major reasons for pediatric surgery.
- a. _____
 - b. _____
 - c. _____
 - d. _____
5. Select true statements concerning hospitalization and its effects on the pediatric patient by placing a "T" or "F" next to the true or false statements.
- _____ a. Parent's anxiety about hospitalization may be transferred to the child.
 - _____ b. Separation anxiety is demonstrated by parents but not children.
 - _____ c. Some fears a child may have about hospitalization could include fears about pain, the unknown, and death.
6. Select true statements concerning vital signs of the pediatric patient by placing a "T" or "F" next to the true or false statements.
- _____ a. Adults develop metabolic disturbances more rapidly than infants.
 - _____ b. It does not matter how long food and fluids are withheld from the pediatric patient as long as they are being monitored.
 - _____ c. Infants become dehydrated rapidly.
 - _____ d. Blood loss should be measured to determine if replacement is necessary.
 - _____ e. Pediatric patients have a wider average body temperature variation than adults.
 - _____ f. Temperature begins to stabilize immediately after birth.
 - _____ g. Heat loss occurs in infants by evaporation, conduction, and radiation.
 - _____ h. Pediatric patients should be kept warm during surgical procedures to prevent hyperthermia.
 - _____ i. The heart rate has a wide average variation in pediatric patients.

Written Test

- _____ j. Pediatric patients are particularly prone to respiratory obstruction because of small tracheas, large tongues, poorly developed respiratory muscles, and small diaphragms.
- _____ k. Vital signs of the pediatric patient may be affected by disease, medications, and emotions.
7. Select true statements concerning special considerations in caring for the pediatric patient by placing a "T" or "F" next to the true or false statements.
- _____ a. Infants and children are sensitive to temperature variations.
- _____ b. Steps to reduce loss of body temperature may include increasing room temperature, using warm solutions, hypo/hyperthermia blanket, wrapping the extremities, and covering the head.
- _____ c. Children are less susceptible to infections than are adults.
- _____ d. Body weight, surface area, and metabolic condition are factors in the effective dosage of drugs.
- _____ e. Vocalizations or crying, facial expressions, and body movements should be observed for signs of pain.
- _____ f. Smaller pillows and supports are used in positioning.
- _____ g. Pressure points do not have to be protected on pediatric patients because their nerves are not as developed.
- _____ h. The size of instruments used on pediatric patients depends on the sex and size of the patient.
- _____ i. Arm and elbow splints may be used to protect dressings and tubes of the pediatric patient.
- _____ j. The anesthesiologist recognizes the small margin for error in dealing with the pediatric patient.
- _____ k. Airway obstruction in infants and children usually occurs late in anesthetic administration or during recovery.
- _____ l. The most common airway concern postoperatively is laryngospasms.

Written Test

8. Complete the following statements concerning common surgical procedures performed on pediatric patients by placing the correct numbers in the blanks provided.

_____ a. The removal of the appendix is known as

- (1) Hysterectomy
- (2) Appendectomy
- (3) Gastrectomy
- (4) Ileostomy

_____ b. An anastomosis along the alimentary canal may be the result of the removal of an obstruction of the

- (1) Esophagus
- (2) Duodenum
- (3) Colon
- (4) All of the above

_____ c. An incision through the pyloric muscle to release a stenosis is

- (1) Meckel's diverticulectomy
- (2) Omphalocelectomy
- (3) Gastrectomy
- (4) Pyloroplasty

_____ d. A procedure to replace small bowel and other internal organs that have prolapsed through the abdominal wall before birth is

- (1) Repair of gastroschisis
- (2) Repair of talipes varus
- (3) Mediastinotomy
- (4) Ramstedt's procedure

_____ e. The procedure performed on the upper stomach and lower esophagus that have been forced up through the diaphragm and into the thoracic cavity is

- (1) Umbilical herniorrhaphy
- (2) Inguinal herniorrhaphy
- (3) Hiatal herniorrhaphy
- (4) Hydrocelectomy

Written Test

- _____ f. A procedure to correct undescended testis is
- (1) Circumcision
 - (2) Hydrocelectomy
 - (3) Orchiopexy
 - (4) Cystectomy
- _____ g. A reconstructive procedure to correct the congenital anomaly in which the urethra opens on the ventral surface of the penis in the male, or the vagina in the female is
- (1) Hypospadias repair
 - (2) Epispadias repair
 - (3) Wilm's procedure
 - (4) Nephrectomy
- _____ h. The procedure to transport cerebrospinal fluid from the ventricles of the brain to the peritoneal cavity is
- (1) Ventriculoatrial shunt
 - (2) Ventriculoperitoneal shunt
 - (3) Cerebral shunt
 - (4) Hydrocephalic shunt
- _____ i. Craniosynostosis is treated by
- (1) Laminectomy
 - (2) Craniotomy
 - (3) Craniectomy
 - (4) Stapedectomy
- _____ j. The procedure done most frequently to extract aspirated foreign bodies is
- (1) Bronchoscopy
 - (2) Laryngoscopy
 - (3) Esophagoscopy
 - (4) Tracheostomy

Written Test

- _____ k. The procedure done to repair a congenital malformation of the chest wall which has a pronounced funnel shaped depression over the lower end of the sternum is
- (1) Repair of pectus carinatum
 - (2) Repair of pectus excavatum
 - (3) Pigeon chest
 - (4) Reconstruction of costal cartilage
- _____ l. The procedure to close an abnormal opening in the walls between the right and left atria is
- (1) Coronary artery bypass graft
 - (2) Ethmoidectomy
 - (3) Septoplasty
 - (4) Septal defect repair
- _____ m. The procedure(s) to correct the lack of fusion of the soft tissues of the upper lip and the palate is known as
- (1) Cheiloplasty/Palatoplasty
 - (2) Otoplasty
 - (3) Myringotomy
 - (4) Uvulopalatopharyngoplasty
- _____ n. The ophthalmic procedure done to correct muscle imbalance and promote coordination by strengthening a weak muscle or by weakening an over-active muscle is
- (1) Resection - Recession
 - (2) Lacrimal duct probing
 - (3) Goniotomy
 - (4) Cataract extraction

**Care of Pediatric Patients
Unit 4-B**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Determine Apgar Scores for
Selected Newborns Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

**Care of Pediatric Patients
Unit 4-B**

Information Sheet

1. Terms and definitions

- a. **Acquired disease process** — Disease or condition not hereditary or innate
- b. **Analgesia** — Absence of normal sense of pain
- c. **Anastomosis** — Union of parts so as to intercommunicate
- d. **Apgar** — Assessment scoring system for newborns
- e. **Atresia** — Imperforation or closure of a normal, tubular opening of the body
- f. **Congenital defect** — Imperfection existing since birth which is acquired during development in the uterus
- g. **Fetal death** — Death of a fetus after 20 weeks of gestation and before delivery, regardless of gestational age, with no signs of life following birth
- h. **Pediatrics** — Branch of medicine dealing with the development, care, and diseases of children
- i. **Premature** — Baby born before 38 weeks of gestation regardless of birth weight
- j. **Separation anxiety** — Generalized fear reaction to separation from significant others
- k. **Stenosis** — Narrowing or constriction of a passage or orifice
- l. **Strabismus (squinting)** — Eye disorder in which optic axes cannot be directed to same object
- m. **Term** — Baby born at 38 or more gestational weeks
- n. **Trauma** — Physical injury or wound caused by external force or violence

Information Sheet

2. Stages of pediatric development

- a. **Fetus** — In utero
- b. **Newborn (Neonate):** Birth to 28 days
 - (1) **Premature** — Gestational age is less than 38 weeks. Birth weight is usually less than 2500 g. or 5.5 lbs.
 - (2) **Term** — Gestational age is 38 weeks or more. Birth weight is more than 2500 g. or 5.5 lbs.
- c. **Infant** — 28 days to 18 months
- d. **Toddler** — 1½ to 2½ years
- e. **Preschool** — 2½ to 5 years
- f. **School Age** — 6 to 12 years
- g. **Adolescent** — 12 to 17 years

3. Assessment of newborns (neonates)

- a. Newborns are evaluated to determine if they are at risk for:
 - (1) Respiratory disorders
 - (2) Neurological disorders
 - (3) Thermal disorders
- b. The Apgar scoring system is the most common initial assessment system used to evaluate newborns. The pediatrician or examiner assigns a score for each characteristic. The higher the score, the more mature the newborn.

Table 1—Apgar scoring system for newborns

Sign	0	1	2
Color	Blue, Pale	Body Pink, Extremities Blue	Completely Pink
Heart Rate	Absent	Below 100 beats per minute	Over 100 beats per minute
Respiratory Rate	Absent	Irregular	Good, crying
Muscle Tone	Limp	Some flexion of extremities	Active motion
Reflex Irritability (Catheter in Nostril)	None	Grimace	Cough, Sneeze

Information Sheet

- c. Newborns of the same gestational age may differ dramatically in development.
- d. A more detailed system of evaluation may be needed after initial assessment has been made.

4. Major reasons for pediatric surgery

a. Congenital anomalies

- (1) Multiple anomalies are often present at birth.
- (2) If the anomaly is not life threatening, surgical intervention may be postponed.

Example: Hypospadias

- (3) Some conditions require immediate surgical intervention.

Example: Esophageal atresia

b. **Disease** — Some acquired diseases or conditions of infancy and childhood can be surgically corrected.

Example: Appendicitis, tonsillitis, Wilm's tumor (involving the kidney)

c. Trauma

Examples: Fractures, burns, lacerations

- (1) Injury can occur during the birth process or anytime after to any body part.
- (2) Accidental injury is the leading cause of death in children.
- (3) The margin for error in diagnosis and treatment of the pediatric patient is less than that for an adult with the same injury.

d. Aspiration or ingestion of foreign objects

Example: Peanut in the bronchus

5. Hospitalization and its effects on the pediatric patient

- a. Parent's anxiety about hospitalization may be transferred to the child.
- b. Separation anxiety may be demonstrated by the child.

Information Sheet

c. Fears a child may have include:

- (1) Fear of pain
- (2) Fear of the unknown
- (3) Fear of death (in older children)

6. Vital signs of the pediatric patient

a. **Metabolism**

- (1) Infants develop metabolic disturbances more rapidly than adults.
- (2) Procedures on the pediatric patient should have priority on the surgery schedule so food and fluid are withheld for as short a time as possible.

b. **Fluids**

- (1) Infants become dehydrated rapidly.
- (2) Blood loss should be measured to determine if replacement is necessary.

c. **Body temperature**

- (1) Pediatric patients have wider average body temperature variations than do adults.
- (2) Temperature begins to stabilize within 12 to 24 hours after birth if the environment is controlled.
- (3) Heat loss occurs in infants by:
 - (a) Evaporation — When skin becomes wet
 - (b) Conduction — When air currents pass
 - (c) Radiation — When heat transfers from body surface to surfaces not in contact with the body
- (4) Pediatric patients should be kept warm during surgical procedures to prevent hypothermia.

d. **Cardiopulmonary reaction**

- (1) The heart rate has a wide average variation in pediatric patients.
- (2) Heart and respiratory sounds are monitored during surgical procedures along with blood pressure and temperature.
- (3) Pulse oximeters are used to monitor the oxygen saturation of the blood.
- (4) Pediatric patients are particularly prone to respiratory obstruction because of their small tracheas, large tongues, poorly developed respiratory muscles, and small diaphragms.

Information Sheet

e. All vital signs of the pediatric patient may be affected by:

- (1) Disease or condition of the patient
- (2) Activity level of the patient
- (3) Medications
- (4) Emotions
- (5) Age and size
- (6) Infections

Table 2—Approximate heart rates, respiratory rates, and blood pressure of children according to developmental ages

Age	Body Temp.	Heart Rate (Beats/Min.)	Respiratory Rate (Breaths/Min.)	Blood Pressure (Systolic/Diastolic)
Birth (neonate)	97-100	140	40	70/50
6 months	99.8	110	30	90/60
1 year	99.8	100	28	90/60
3-4 years	96.5-99	95	25	100/70
5-10 years	96.5-99	90	24	105/70
11-15 years	98.6-99	85	20	110/70
Over 15 years	98.6	75-80	16-18	120/80

7. Special considerations in caring for the pediatric patient

a. Temperature

- (1) Infants and children are sensitive to temperature variations due to an immature thermoregulatory mechanism and less body fat to insulate their bodies.
- (2) The following steps are commonly taken to regulate the OR temperature and reduce body temperature loss:
 - (a) Increase room temperature.
 - (b) Use hypo/hyperthermia blanket.
 - (c) Use warm solutions (saline, blood).
 - (d) Wrap extremities.
 - (e) Cover the head with cap or stockinette.
 - (f) Use heat lamp.

b. Infection

- (1) Children are more susceptible to infection than adults. Strict adherence to aseptic techniques is essential.
- (2) Respiratory infection may cause airway obstruction or laryngeal edema.

Information Sheet

c. **Medication**

- (1) The effective dose of drugs varies from child to child according to:
 - (a) Body weight
 - (b) Surface area
 - (c) Metabolic condition
- (2) Children differ from adults in their response to pharmacologic agents. Their tolerance to analgesic drugs is altered.

d. **Pain**

- (1) Children may be unable to describe the location and nature of their pain.
- (2) Therefore, they must be observed for signs of pain:
 - (a) Vocalizations (crying, moaning)
 - (b) Facial expressions (grimacing)
 - (c) Body movements (jerking away when touched in painful areas)

e. **Positioning and draping**

- (1) Smaller pillows and supports are used in positioning.
- (2) Adequate padding and loose wrappings are used to protect pressure points and prevent abrasion of their delicate skin.
- (3) Avoid excessive draping that can retain heat and put a weight on the body.

f. **Vital signs**

- (1) The immaturity of vital systems leads to irregular responses.
- (2) Vital signs must be continually monitored.

g. **Instrumentation**

- (1) The tissues and organs of infants and children are fragile and require:
 - (a) The use of delicate, small instruments
 - (b) Small needles
 - (c) Fine sutures
- (2) The specific sizes required will depend on the weight and size of the patient and on the type of surgery scheduled.

Information Sheet

h. Dressings

- (1) To ensure that dressings and tubes are not disturbed by the child, arm or elbow splints may be used.
- (2) Adhesive spray or collodion is used over small incisions with subcuticular closure instead of a standard closure and dressing since dressings can bother a child, as well as become easily soiled or wet.

i. Anesthesia

- (1) The anesthesiologist recognizes the small margin for error and responses to drugs of pediatric patients. Changes occur very quickly in children.
- (2) Crying produces an increase in mucus of the respiratory tract.
- (3) Premedication may be given 45-60 minutes before bringing the child to surgery to produce serenity. These may include:
 - (a) Sufentanil® — Causes relaxation
 - (b) Fentanyl citrate — Reduces fear (can be made into a hard candy stick)
 - (c) Diazepam — Causes relaxation
 - (d) Meperidine hydrochloride — Produces the absence of normal sense of pain (analgesia)
- (4) Airway obstruction in infants and children usually occurs early during anesthetic administration.
- (5) The most common airway concern postoperatively is laryngospasms.

8. Common surgical procedures performed on pediatric patients

a. General surgery procedures

- (1) **Anastomosis along the alimentary canal** — Removal of an obstruction and an anastomosis of the remaining parts; common in the esophagus, ileum, duodenum, colon, and anus. The obstruction may be caused by a stenosis or atresia.

Examples: Esophageal atresia, tracheoesophageal fistula, Meckel's diverticulitis, Hirschsprung's disease

- (2) **Meckel's Diverticulectomy** — Removal of a blind pouch usually leading off the ileum which may require some resection of the bowel.
- (3) **Pyloroplasty (or Ramstedt's procedure) or Pyloromyotomy** — Incision through the pyloric muscle to release a stenosis. This is done to correct pyloric stenosis.

Information Sheet

- (4) **Repair of gastroschisis or omphalocele** — One or more operations to replace small bowel and other internal organs that have prolapsed through the abdominal wall before birth. At birth, the small bowel (intestine), liver, and sometimes large bowel lie outside the abdomen, enclosed by a membranous sac. The prolapsed organs are placed inside the abdominal cavity, and the edges of skin are drawn together and stitched over the exposed bowel. A sheet of sterile plastic may be needed if the abdominal cavity is too small and the defect cannot be closed safely.
- (5) **Reduction of Intussusception** — Procedure to relieve the telescoped bowel obstruction that develops most frequently at the junction of the small and large intestine. This may involve some resection if the bowel is damaged.
- (6) **Colostomy** — Formed by diverting part of the colon to the outside of the body through a stoma (hole) in the abdominal wall to excrete bowel contents. Performed for congenital obstruction of the large bowel.

Example: Imperforate anus (absence of anal opening), Hirschsprung's disease (absence of nerve cells in part of the colon)

- (7) **Appendectomy** — Removal of an inflamed or infected appendix to prevent possible rupture and peritonitis.
- (8) **Splenectomy** — Removal of the spleen. A splenectomy is recommended for some chronic cases of a bleeding disorder known as idiopathic thrombocytopenic purpura (ITP), hemolytic anemias, and ruptured spleen due to trauma.
- (9) **Hiatal hernia repair** — Performed on the upper part of the stomach and the lower esophagus that have been forced up through the diaphragm and into the thoracic cavity.
- (10) **Inguinal herniorrhaphy** — Removal of a hernial sac in the groin and repair of the muscles and tissues of the inguinal ring.
- (11) **Umbilical herniorrhaphy** — Removal of a hernia sac protruding through the umbilicus, followed by repair of the defect in the abdominal muscles.

b. Urology procedures

- (1) **Cystoscopy** — Visual examination with a cystoscope of the interior walls and contents of the bladder.
- (2) **Circumcision** — Surgical removal of the foreskin of the penis for hygienic reasons, cultural reasons, and difficulty in passing urine due to tight foreskin.
- (3) **Hydrocelectomy** — Procedure done to correct a build-up of fluid in the scrotum causing swelling. The abnormal tract allowing peritoneal fluid to the scrotum is identified through a small incision in the groin.
- (4) **Orchidopexy/Orchiopexy** — Procedure to correct undescended testes. This procedure is done in two stages: an incision is made in the groin to free and lengthen the spermatic cord, and another incision is made in the scrotum to draw the testis down into position. The earlier this procedure is performed, the less threat of infertility.

Information Sheet

- (5) **Hypospadias repair** — Reconstructive procedure(s) to correct the congenital anomaly in which the urethra opens on the ventral surface of the penis in the male or into the vagina in the female.
- (6) **Epispadias repair** — Reconstructive procedure(s) to correct the congenital anomaly in which the urethra opens on the dorsal surface of the penis in the male or above the clitoris in the female.
- (7) **Nephrectomy** — Removal of a segment or the entire kidney when tumor, disease, or traumatic injury has resulted in absence of renal function.

Note: Wilm's tumor is a malignant solid renal tumor that develops rapidly in children. A nephrectomy is necessary to resect the tumor.

c. Orthopedic procedures

- (1) **Reduction of fractures** — Common procedure performed on children for accidents. Fractures can be treated by:
 - (a) Closed Reduction — The preferred method using an external fixation device or cast
 - (b) Open Reduction Internal Fixation (ORIF) — Because external fixation devices are generally not well-tolerated by children and often prevent uniting of fracture, internal fixation may be necessary.
- (2) **Tendon repair** — Shortening or lengthening tendons generally of the hand, leg, or foot.
- (3) **Congenital dislocated hip repair** — Procedure to correct abnormal displacement of the head of the femur out of the socket of the hip joint.
 - (a) This condition can be caused by:
 - 1) Shallow hip socket
 - 2) Abnormally lax ligaments
 - 3) Trauma during delivery
 - (b) If diagnosed early in infancy, closed reduction with immobilization usually corrects the dislocation.
 - (c) This condition is more common in females.
- (4) **Talipes varus repair (clubfoot)** — Procedure to treat the deformity of the foot causing one or both feet to be twisted into abnormal shape or position. Tendons and ligaments on the back and inside of the foot and ankle are cut to allow the foot to be moved into a normal position. Then immobilization in a plaster cast for three months helps to correct and stabilize the foot.

Information Sheet

d. Neurology procedures

- (1) **Shunt insertion** — Procedure(s) performed to reduce cranial pressure which can cause enlargement of the infant's head and increased ventricular pressure. Two basic types of shunts may be used:
 - (a) Ventriculoperitoneal shunt (VP) — Transports cerebrospinal fluid from the ventricles of the brain to the peritoneal cavity
 - (b) Ventriculoatrial shunt (AV) — Transports cerebrospinal fluid from the ventricles of the brain to the right atrium of the heart

Note: Shunts are used to treat hydrocephalus.

- (2) **Myelomeningocele repair** — Procedure to repair a saclike protrusion through a defect of the vertebrae column that failed to fuse in fetal development. Other congenital anomalies often accompany this condition. The sac is drained and the contents placed in proper position along the vertebral column.
- (3) **Craniectomy** — Incision into the skull and removal of bone for several reasons:
 - (a) Removal of tumors and hematomas
 - (b) Relief of pressure on the brain from depressed bone or internal hemorrhage
 - (c) Removal of fused bones to re-open prematurely closed suture lines

Note: This condition is known as craniosynostosis.

e. Thoracic procedures

- (1) **Endoscopic procedures** — Designed for direct inspection and observation using a lighted telescope to remove secretions, obtain washings or tissue for bacterial and cytologic studies, and removal of foreign bodies. Several types of endoscopy may be used in thoracic procedures.
 - (a) Bronchoscopy — Permits visualization of the upper, middle, and lower lobe bronchi. The rigid bronchoscope is used to extract aspirated foreign bodies.
 - (b) Mediastinoscopy — Permits visualization of lymph nodes or masses in the superior mediastinum.
 - (c) Esophagoscopy — Permits direct visualization of the esophagus and cardiac portion of the stomach.
 - (d) Laryngoscopy — Permits direct visualization of the larynx.

Information Sheet

- (2) **Pectus excavatum repair (Funnel chest repair)** — Procedure performed to correct a congenital malformation of the chest wall which has a pronounced funnel-shaped depression over the lower end of the sternum. Performed to provide normal respiratory and circulatory functions and for cosmetic reasons. Pectus excavatum is corrected for children ages 2-6 years.
- (3) **Pectus carinatum repair (Pigeon chest repair)** — Procedure performed to correct an abnormal prominence of the sternum. Pectus carinatum usually does not present until the teen years following the growth spurt.

f. Cardiovascular procedures

- (1) **Septal defect repair** — Performed to close abnormal openings in the walls separating the chambers of the heart. These require cardiopulmonary bypass to repair. Types of defects include:
 - (a) Atrial septal defect — Opening in the wall between the right and left atria.
 - (b) Ventricular septal defect — Located in the membranous portion of the septum between the right and left ventricles. This is the most common of the congenital heart anomalies.
 - (c) Atrioventricular canal defect — The connective tissue that normally divides the heart into the four chambers has failed to develop.
- (2) **Tricuspid atresia repair** — Procedure to anastomose the superior vena cava to the right pulmonary artery to create normal blood flow through the chambers of the heart in the absence of a tricuspid valve between the right atrium and left ventricle

g. Otorhinolaryngology/plastic reconstructive procedures

- (1) **Myringotomy** — Procedure to drain fluid in the middle ear. Small incision is made into the eardrum. Tubes may be inserted to keep the opening patent.
- (2) **Stapedectomy** — Procedure to remove the stapes of the middle ear and replace it with a prosthesis to improve hearing
- (3) **Tympanoplasty** — Procedure to repair damage to the eardrum and/or ossicles resulting from cholesteatoma, granulation tissue, or otitis media
- (4) **Otoplasty** — Procedure to reconstruct the external ears. Reconstruction may result from microtia (abnormally small or absent ears), trauma, or protruding or excessively large ears.
- (5) **Cheloplasty/Palatoplasty** — Procedure(s) to correct the lack of fusion of the soft tissues of the upper lip and the palate.
 - (a) Cleft lip — May involve the lip only or extend to the floor of the nose

Information Sheet

- (b) **Cleft palate** — May involve only the soft palate or both hard and soft palate, the nose, and ridge of the maxilla

Note: Closure of soft palate is done before speech begins.

- (6) **Tonsillectomy/Adenoidectomy (T & A)** — Performed to remove patches of lymphoid tissue located in the pharynx usually due to repeated infections
- (7) **Tracheostomy** — Performed on children with breathing problems and/or those who need assistance by mechanical means. An opening is made into the trachea and a tracheostomy tube is inserted.
- (8) **Removal of hemangioma** — Procedure on a benign tumor of dilated blood vessels

Note: Some hemangiomas can be treated with lasers, and others require surgical removal with skin graft or pedicle flap repair.

- (9) **Syndactylism reconstruction** — Performed on the hands and feet for webbing between the digits with skin grafts.

Note: Syndactylism is the most common congenital hand deformity.

h. Ophthalmic procedures

- (1) **Muscle procedures** — To correct muscle imbalance and disorders such as strabismus and to promote coordination by strengthening a weak muscle or by weakening an over-active one.
 - (a) **Resection** — Part of the muscle is removed to shorten it, and the cut ends are sutured together.
 - (b) **Recession** — Muscle is detached from the eyeball and re-attached farther back to decrease its action.
- (2) **Lacrimal duct probing** — Procedure to open the lacrimal duct which is closed in approximately 35% of newborns. Manipulation is done through the upper punctum and then to the canaliculus and forced through the opening into the nose.
- (3) **Ptosis repair (Drooping of upper or lower eyelids)** — Indicated when the levator muscle is weak.
- (4) **Intraocular procedures**
 - (a) **Congenital cataract extraction** — Procedure to obtain a clear optical area after cataract removal. A lens may be implanted. If not treated in the first few weeks of life, lazy eye may develop.
 - (b) **Goniotomy** — Opening of a congenital membrane from the iris surface allowing aqueous humor to leak. Urgent treatment is necessary to prevent blindness.

Care of Pediatric Patients
Unit 4-B

Assignment Sheet 1—Determine Apgar Scores For Selected Newborns

Name _____ Overall Rating _____

Evaluation criteria	Rating
Information is correct	_____
Scores are assessed for all infants	_____

Directions: Using the following Apgar scoring chart, determine the Apgar score of each of the newborns described. After all scores are totaled, answer the questions that follow.

Sign	0	1	2
Color	Blue, Pale	Body Pink, Extremities Blue	Completely Pink
Heart Rate	Absent	Below 100 beats per minute	Over 100 beats per minute
Respiratory Rate	Absent	Irregular	Good, crying
Muscle Tone	Limp	Some flexion of extremities	Active motion
Reflex Irritability (Catheter in Nostril)	None	Grimace	Cough, Sneeze

Assignment Sheet 1

The following observations and assessments were made on each newborn. Determine their scores.

Newborn 1:	Apgar Score
a. Color: Pale, blue	
b. Heart Rate: Below 100 beats/minute	
c. Respiratory Rate: Irregular	
d. Muscle Tone: Active motion	
e. Reflex Irritability: None	
f. Total	

Newborn 2:	Apgar Score
a. Color: Pink body, blue extremities	
b. Heart Rate: Over 100 beats/minute	
c. Respiratory Rate: Good, crying	
d. Muscle Tone: Some flexion	
e. Reflex Irritability: Grimace	
f. Total	

Newborn 3:	Apgar Score
a. Color: Completely pink	
b. Heart Rate: Over 100 beats/minute	
c. Respiratory Rate: Good, crying	
d. Muscle Tone: Active motion	
e. Reflex Irritability: Cough, sneeze	
f. Total	

Newborn 4:	Apgar Score
a. Color: Completely pink	
b. Heart Rate: Below 100 beats/minute	
c. Respiratory Rate: Irregular	
d. Muscle Tone: Active motion	
e. Reflex Irritability: Cough, sneeze	
f. Total	

Assignment Sheet 1

1. Which newborn has the highest assessment for color?
Newborn _____ Score _____
2. Which newborn has the lowest assessment for reflex irritability?
Newborn _____ Score _____
3. Which newborn has the highest assessment total Apgar score?
Newborn _____ Score _____
4. Which newborn has the lowest assessment total Apgar score?
Newborn _____ Score _____

Care of Patients With Special Needs

Unit 5-B

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss the requirements and considerations for the surgical team caring for patients with special needs. The students should demonstrate these competencies by completing the assignment sheet and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to care of patients with special needs with their correct definitions.
2. Select true statements concerning characteristics of patients with special needs.
3. Distinguish between acute and chronic patients.
4. Describe the requirements and considerations for the surgical team caring for patients with special needs.
5. Complete statements concerning the care of patients with emotional/mental impairments.
6. Complete statements concerning the care of patients who are physically challenged.
7. Select true statements concerning the care of patients with special language, cultural, and religious needs.
8. Complete statements concerning the care of patients with metabolic impairments.
9. Complete statements concerning the care of patients with hematological disorders.
10. Select true statements concerning the care of patients with sexually-related disorders or procedures.
11. Complete statements concerning the care of patients with aseptically critical conditions.
12. Evaluate case studies and discuss special care considerations for patients with special needs. (Assignment Sheet 1)

Care of Patients With Special Needs

Unit 5-B

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
5. Develop teaching plan. Adjust for different learning styles.
6. Make copies of Unit Evaluation Form, which follows the written test section.

Delivery and Application

7. Provide students with unit of instruction.
8. Discuss unit and specific objectives.
9. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
10. Discuss the assignment sheets. Review criteria for evaluation of these activities.

Evaluation

11. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
12. Make copies of the written test. Add or modify test items as needed.
13. Give written test.
14. Compile assignment sheet ratings and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
15. Reteach and retest as required.

Suggested Activities

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Assign students topics related to caring for patients with special needs:
 - a. Emotionally/mentally impaired patients
 - b. Physically challenged patients
 - c. Patients with special language, culture, and religious needs
 - d. Patients with metabolic impairments
 - e. Patients with hematological disorders
 - f. Patients with sexually-related disorders or procedures
 - g. Patients with aseptically critical conditions

Topics are to be researched and then written or oral presentations given. This reinforces the **basic communication skills** and **foundation reading and writing skills**.

2. Using the assignment sheet divide the class into five groups assigning each group two case studies to discuss and present to the class. This reinforces **group effectiveness skills** and **communication skills**.
3. Review the unit by playing games like Jeopardy or Family Feud converting the objectives into questions.

Resources Used in Developing This Unit

1. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, 1992.
2. Fuller, Joanna. *Surgical Technology: Principles and Practice*. Philadelphia: W. B. Saunders Co., 1986.
3. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, 1991.
4. *Taber's Cyclopedic Medical Dictionary*. Revised and edited by Clayton L. Thomas. 17 ed. Philadelphia: F. A. Davis Co., 1993.

Suggested Activities

Suggested Supplemental Resources

1. *Responding to the Handicapped*, 26-minute videotape. Purpose of program is to increase awareness of how viewers can respond more easily to handicapped people. Available from:

Films for the Humanities and Sciences
Box 2053
Princeton, NJ 08543-2053
800-257-5126 or 609-452-1128

2. *AIDS and the Health Care Provider*, 19-minute videotape. Reduces fear about AIDS which can interfere with and prevent appropriate patient care. Demonstrates the importance of isolating the AIDS virus, not the patient with AIDS. Available from:

American Journal of Nursing Company
Education Services Division
555 West 57th Street
New York, NY 10019-2961
800-CALLAJN (225-5256)

3. *Psychosocial Care Series: The Artistry of Medicine*, 22-minute videotape. Presents the basic concepts of psychosocial care and how they can be incorporated.
4. *The Body Machine*, 14-minute videotape. Discusses the normal physiology of metabolism and how this process is affected by diabetes.

3 and 4 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Grove, CA 92641
800-877-1443 or 714-891-1443

5. *Diabetes/Road Map to Control*, 17-minute videotape. Describes diabetes and how insufficient insulin affects the various body functions.
6. *Why Patients Get Angry*, 27-minute videotape. Tips are offered on handling situations which provoke anger in the patient, as well as suggestions on interaction with an upset patient.

Suggested Activities

7. *Where Did the Caring Go?*, 18-minute videotape. Presents an actual event that should be thought provoking for anyone who delivers health care.

5-7 are available from:

Fairview Audio-Visuals
17909 Groveland Avenue
Cleveland, OH 44111
216-476-7054

8. *Patients . . . Are People Too*, 14-minute videotape. Discussion-trigger videotape that shows how incorrect information and indiscreet remarks affect patient care.
9. *Beyond Recognition*, 53-minute videotape. Covers the physiological and psychological disturbances burn patients suffer as a result of their injuries.
10. *Larry: An Amputee's Story*, 57-minute videotape. Helps amputees, their families, and their health care providers cope with the unique physical, psychological, sociological, and spiritual problems amputation brings.

8-10 are available from:

Health Sciences Consortium
201 Silver Cedar Court
Chapel Hill, NC 27514-1517
919-942-8731

Care of Patients With Special Needs Unit 5-B

Answers to Written Test

1. a. 5 d. 8 g. 11 j. 9
 b. 12 e. 13 h. 7 k. 3
 c. 1 f. 2 i. 4

2. a. T
 b. F
 c. F
 d. T

3. a. C e. A
 b. A f. A
 c. A g. C
 d. C

4. Any four of the following psychosocial requirements/considerations:
 - a. Maintain objectivity.
 - b. Utilize empathy when interacting.
 - c. Avoid communication blocks (cliches).
 - d. Use simple, direct communication.
 - e. Frequently assess patient's understanding.
 - f. Assist by contacting the facility support resources.
 - g. Keep family informed as permitted.
 - h. Use physical reassurance as needed.
 - i. Allow religious/cultural symbols according to facility regulations.

5. a. 4
 b. 2
 c. 1

6. a. 1
 b. 1

7. a. F
 b. T
 c. T
 d. T

8. a. Any one of the following: Diabetes, liver dysfunction, kidney dysfunction, or eating disorders
 b. Any one of the following: Anorexia or bulimia
 c. Any one of the following: Special IV fluids or medications

Answers to Written Test

9. a. Anemias
b. Life or death
c. Blood and/or blood products
d. Quickly
e. Pressure
10. a. T d. T
b. F e. F
c. T f. F
11. a. 4
b. 3
c. 3
d. 1

Care of Patients With Special Needs
Unit 5-B

Written Test

Name _____ Score _____

1. Match the terms related to care of patients with special needs with their correct definitions.

- | | | |
|----------|--|------------------------|
| _____ a. | Psychological disorder marked by feelings of sadness and hopelessness, inactivity, difficulty in thinking and concentrating, increase or decrease in normal eating or sleeping patterns, and sometimes suicidal tendencies | 1. Alzheimer's disease |
| _____ b. | Relating social conditions to mental health | 2. Anxiety |
| _____ c. | Degenerative disease of the central nervous system characterized by premature senile mental deterioration | 3. Bias |
| _____ d. | Physiological or psychological requirements for the well-being of an organism | 4. Culture |
| _____ e. | Psychological disorder characterized by loss of contact with the environment, lower level of functioning in everyday life, and disintegration of personality | 5. Depression |
| _____ f. | Abnormal and overwhelming apprehension or fear about upcoming events | 6. Discreet |
| _____ g. | Relating to an organism's mental or behavioral functioning | 7. Metabolism |
| _____ h. | Sum of all processes used by living cells to provide energy for vital activities | 8. Needs |
| _____ i. | Customary beliefs and traits of a racial, religious, or social group | 9. Paranoia |
| _____ j. | Psychological disorder characterized by delusions of persecution or grandeur | 10. Physiological |
| _____ k. | Prejudice; unreasonable distortion of judgment | 11. Psychological |
| | | 12. Psychosocial |
| | | 13. Schizophrenia |

Written Test

2. Select true statements concerning characteristics of patients with special needs by placing a "T" or "F" next to the true or false statements.
- _____ a. Occur in small percentage of population
 - _____ b. Is usually chronic in nature
 - _____ c. Has little effect on surgical results
 - _____ d. May require special attention by the surgical team such as in communication, positioning, and environmental climate
3. Distinguish between acute and chronic patients by placing a "C" in front of statements that describe chronic patients and an "A" in front of statements that describe acute patients.
- _____ a. Patients with long term illnesses such as diabetes
 - _____ b. Patients with traumatic injuries
 - _____ c. Patients who are most likely to have unrealistic approaches to their situation
 - _____ d. Patients with terminal illnesses such as cancer or AIDS
 - _____ e. Patients with recently diagnosed potentially terminal diseases
 - _____ f. Patients who are most likely to be overwhelmed and unable to focus on even simple tasks
 - _____ g. Patients with disfigurements such as burn patients
4. Describe four requirements/considerations for the surgical team when caring for the *psychosocial needs* of patients with special needs:
- a. _____

 - b. _____

Written Test

- c. _____

- d. _____

5. Complete statements concerning the care of patients with emotional/mental impairments by selecting the best word/phrase to complete the statement.

_____ a. Patients who have mental illnesses include those with:

1. Cancer
2. Burns
3. Hearing deficits
4. Paranoia

_____ b. Patients with an inability to understand and/or remember include all of the following *EXCEPT* those with:

1. Mental retardation
2. Cerebral palsy
3. Head traumas
4. Alzheimer's

_____ c. Considerations for the surgical team include all of the following *EXCEPT*:

1. Speak only to the patient's family, never the patient.
2. Noise control is very important.
3. Constant physical reassurance may be needed.
4. Attachments such as blankets or stuffed animals should be allowed.

6. Complete statements concerning the care of patients who are physically challenged by selecting the best word/phrase to complete the statement.

_____ a. Patients who are physically challenged include all of the following *EXCEPT* those with:

1. Self destructive tendencies
2. Paralysis
3. Hearing or vision defects
4. Neuromuscular disorders

Written Test

- _____ b. The greatest number of considerations for the surgical team caring for a patient who is physically challenged is in the _____ area.
1. Physical
 2. Psychosocial
 3. Environmental
7. Select true statements concerning the care of patients with special language, cultural, and religious needs by placing a "T" or "F" next to the true or false statements.
- _____ a. Patients include those with cultural or religious practices that vary from the minority of the local population.
- _____ b. Patients include those whose language is not the primary language for the local population.
- _____ c. Considerations for the surgical team may include allowing religious/cultural practices as much as possible.
- _____ d. Receiving blood from others may be against some patient's cultural/religious beliefs.
8. Complete statements concerning the care of patients with metabolic impairments by filling in the blank with the correct word or words to complete the statement.
- a. Patients with metabolic impairments include those with: _____.
- b. Eating disorders include _____.
- c. Physical considerations may include the use of _____ as ordered.
9. Complete statements concerning the care of patients with hematological disorders by filling in the blanks with the correct word or words to correctly complete the statement.
- a. Patients with hematological disorders include those who have: hemophilia or other bleeding disorders, bloodborne diseases, or _____.
- b. Psychosocial considerations include the fact that those with bleeding disorders may be facing a critical, _____ situation.
- c. Physical considerations include anticipating the need for _____.

Written Test

- d. Working _____ and anticipating the surgeon's needs is important.
- e. When positioning patients with hematological disorders, pay attention to _____ points.
10. Select true statements concerning the care of patients with sexually-related disorders or procedures by placing a "T" or "F" next to the true or false statements.
- _____ a. Patients include those who have cancer of reproductive organs.
 - _____ b. Patients include those undergoing repeat cesarean sections
 - _____ c. Patients include those who have gender reassignments, penile prostheses, and abortions.
 - _____ d. Patients include those who are having infertility procedures or removal of foreign bodies used for sexual gratification.
 - _____ e. Special considerations center around psychosocial actions such as being judgmental and disregarding confidentiality.
 - _____ f. Paying attention to verbal and nonverbal communications is of little importance.
11. Complete statements concerning the care of patients with aseptically critical conditions by selecting the word or phrase that best completes each statement.
- _____ a. Patients with aseptically critical conditions include all of the following EXCEPT those who have:
 - 1. Burns
 - 2. HIV+
 - 3. Transplant recipients
 - 4. Pacemakers
 - _____ b. Psychosocial considerations include all of the following EXCEPT:
 - 1. Being nonjudgmental
 - 2. Being supportive
 - 3. Being judgmental

Written Test

- _____c. Burn patients should be transported:
1. On their bed to the holding area.
 2. On a stretcher directly to the operating room.
 3. On their bed directly to the operating room.
- _____d. When caring for a burn patient, it may be necessary to _____ the temperature in the OR.
1. Increase
 2. Decrease

*Permission to duplicate this test is granted.

520

**Care of Patients With Special Needs
Unit 5-B**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Evaluate Case Studies and Discuss Special
Care Considerations for Patients with Special Needs Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

521

**Care of Patients With Special Needs
Unit 5-B**

Information Sheet

1. Terms and definitions

- a. **Alzheimer's disease** — Degenerative disease of the central nervous system characterized by premature senile mental deterioration
- b. **Anxiety** — Abnormal and overwhelming apprehension or fear about upcoming events

Note: Apprehension before surgery is normal. Anxiety is the irrational and abnormal fear of impending doom without the ability to cope. Anxiety may be marked by physiological signs such as sweating, tension, and increased pulse.
- c. **Bias** — Prejudice; unreasoned distortion of judgment
- d. **Culture** — Customary beliefs and traits of a racial, religious, or social group
- e. **Depression** — Psychological disorder marked by feelings of sadness and hopelessness, inactivity, difficulty in thinking and concentrating, increase or decrease in normal eating or sleeping patterns, and sometimes suicidal tendencies
- f. **Discreet** — Showing good judgment in conduct and speech; preserving silence as judged appropriate
- g. **Metabolism** — Sum of all processes used by living cells to provide energy for vital activities
- h. **Needs** — Physiological or psychological requirements for the well-being of an organism
- i. **Paranoia** — Psychological disorder characterized by delusions of persecution or grandeur
- j. **Physiological** — Relating to an organism's physical functioning
- k. **Psychological** — Relating to an organism's mental or behavioral functioning
- l. **Psychosocial** — Relating social conditions to mental health
- m. **Schizophrenia** — Psychological disorder characterized by loss of contact with the environment, lower level of functioning in everyday life, and disintegration of personality

Information Sheet

2. Characteristics of patients with special needs

- a. Occur in a small percentage of the population
- b. May be acute or chronic in nature
- c. May directly affect surgical results

Note: Some patients have special needs in more than one area.

- d. Require special attention by the surgical team in one or more of the following areas:

- (1) Communication
- (2) Patient transportation
- (3) Environmental climate (temperature and humidity)
- (4) Patient positioning
- (5) Aseptic technique

Note: The surgical team members may have biased feelings toward some patients with special needs. These feelings will need to be personally explored before the best care can be given to that patient.

3. Differences between acute and chronic patients

a. Acute patients

- (1) Include those with:

- (a) Traumatic injuries such as accidents and electrical shock
- (b) Sudden onset such as pneumonia, stroke, and heart attacks
- (c) Recently diagnosed potentially terminal illness

- (2) Behaviors often seen in acutely ill patients include:

- (a) Anxiety — May be easily agitated
- (b) Depression — May be withdrawn
- (c) Anger — May verbally attack the staff
- (d) Overwhelmed — May be unable to focus on conversations or tasks at hand
- (e) Denial — May have unrealistic assessment of their health status

Information Sheet

b. Chronic patients

- (1) Include those with:
 - (a) Long term illnesses such as diabetes and heart disease
 - (b) Terminal illnesses such as cancer and AIDS
 - (c) Permanent or long term disfigurements such as burn patients
- (2) Behaviors often seen in chronically ill patients include:
 - (a) Anxiety — May show apprehension, uneasiness, uncertainty. Physiological manifestations include increased pulse and respiratory rates, diaphoresis, rapid eye movements, dilated pupils, stuttering, muscle rigidity, confusion, and distortion of events
 - (b) Depression — May have agitated signs of despair, hopelessness, disinterest, or desolation. Characterized by a sad, frowning face or little expression, apathy, somatic complaints, and impaired thinking and memory
 - (c) Anger — May be expressed verbally through criticism of care or nonverbally through physical expressions such as clenched fists or pursed lips
 - (d) Resolution — May have realistic approaches to their situations, and may also have optimism for improved health or peaceful deaths

4. Requirements and considerations for the surgical team caring for patients with special needs

a. Psychosocial needs

- (1) Maintain objectivity. Do not be judgmental, take comments personally, or retaliate.
- (2) Utilize empathy when interacting. Show respect for the patient's/family's cultural values.
- (3) Avoid communication blocks. Do not use cliches or offer false hope.
- (4) Use simple, direct communication. Focus on the task and repeat information as needed.
- (5) Frequently assess patient's understanding. Ask the patient/family to repeat information given to make sure they understand.
- (6) Assist family/patient by contacting facility support resources such as social worker or chaplain.

Information Sheet

- (7) Keep the family or significant others informed of patient's situation **as permitted by the physician(s) caring for the patient's care.**
- (8) Use physical reassurance as required by the patients or family.
- (9) Allow religious/cultural symbols according to facility regulations.

Note: These are mainly nursing functions, but it is important for the surgical technologist to have an understanding of this component of patient care.

b. **Physical needs**

- (1) Will depend on the nature of the illness or injury
- (2) In many cases which threaten life or limb, time is crucial to the patient's survival. In these cases the patient's physical needs will take precedence over their psychosocial needs.

Example: Ruptured abdominal aortic aneurism, head injuries, profuse bleeding either internally or externally

5. **Care of patients with emotional/mental impairments**

a. These patients include those who are:

- (1) **Mentally ill** — Those with paranoia, schizophrenia, self destructive behaviors, etc.
- (2) **Unable to understand and/or remember** — Those with mental retardation, Alzheimer's disease, head traumas, etc.

b. Considerations for the surgical team include:

- (1) **Psychosocial** — Speak slowly and clearly and use simple words.
- (2) **Physical** — May require constant physical reassurance and/or restraint to prevent the patient from injuring himself/herself.
- (3) **Environmental** — Noise control is very important. Soothing music may be used. Also, if there is an attachment to an item such as a blanket or stuffed animal, that item should be allowed in the OR.

Information Sheet**6. Care of patients who are physically challenged**

- a. Patients include those who have:
 - (1) Paralysis
 - (2) Missing limbs
 - (3) Arthritis and other bone and joint problems
 - (4) Neuromuscular disorders such as cerebral palsy or muscular dystrophy
 - (5) Sensory impairment such as vision or hearing deficits
- b. Considerations for the surgical team include:
 - (1) Psychosocial — Assess patient's needs and respond accordingly.
 - (2) Physical
 - (a) Adjust communications as needed if vision or hearing deficits are present.
 - (b) Consider patient's safety and comfort when transporting or moving the patient.

Example: Transporting on patient's bed instead of stretcher
 - (c) Use additional pillows and padding if needed while positioning to accommodate physical deformities.
 - (3) Environmental — None

7. Care of patients with special language, cultural, and religious needs

- a. Patients include those with:
 - (1) Cultural or religious practices that vary from the majority of the local population.
 - (2) Language that is not the primary language for the local population.
- b. Considerations for the surgical team include:
 - (1) Psychosocial
 - (a) Use an interpreter when possible.
 - (b) Allow cultural/religious practices as much as possible.

Information Sheet

(2) Physical

- (a) If procedure calls for blood transfusions (from others) and this is against the patient's cultural/religious beliefs, the surgical team needs to have equipment available to allow for autotransfusion.
- (b) Hospital clothing may be unacceptable to some females and certain cultures. Allow special cultural or religious clothing practices to continue as much as possible. Special clothing may be worn until the patient is in the operating room and then replaced prior to leaving the post anesthesia room.

Examples: Some Middle Eastern countries require females to cover their faces and heads. Jewish males may wear skull caps.

- (c) Care being given by persons of the opposite sex may be unacceptable to the patient. Have persons of same sex perform patient interactions.

(3) Environmental — Control noise.

8. Care of patients with metabolic impairments

a. Patients include those with:

- (1) Diabetes
- (2) Liver dysfunction
- (3) Kidney dysfunction
- (4) Eating disorders such as anorexia or bulimia

b. Special considerations for the surgical team:

- (1) Psychosocial — None
- (2) Physical
 - (a) Use special IV fluids and medications as ordered.
 - (b) Pay attention to possible vascular impairment due to the effects of fluid or nutritional imbalances
- (3) Environmental — None

Information Sheet

9. Care of patients with hematological disorders

- a. Patients include those who have:
 - (1) Hemophilia or other bleeding disorders
 - (2) Anemias
 - (3) Bloodborne diseases such as hepatitis B and HIV
- b. Special consideration for the surgical team:
 - (1) Psychosocial — Those with bleeding disorders may be facing a critical, life or death situation. Use simple, effective communication.
 - (2) Physical
 - (a) Anticipate the need for blood and/or blood products.
 - (b) Use care in positioning. Patient may bleed at pressure points.
 - (c) Work quickly and anticipate surgeon's needs.
 - (d) Use Universal Precautions.

Note: All patients should be treated as potential sources of bloodborne disease, and Universal Precautions must be followed.

- (3) Environmental — Make sure room is warm.

10. Care of patients with sexually-related disorders or procedures

- a. Patients include those who have:
 - (1) Cancer of reproductive organs
 - (2) Gender reassignment (sex change)
 - (3) Penile prosthesis
 - (4) Abortions
 - (5) Infertility procedures such as in vitro fertilization
 - (6) Removal of foreign bodies used for sexual gratification

Information Sheet

b. Special considerations for the surgical team:

(1) Psychosocial

- (a) Be nonjudgmental.
- (b) Be empathetic.
- (c) Maintain discreet patient confidentiality.
- (d) Pay attention to verbal and nonverbal communications.

(2) Physical — None

(3) Environmental — None

Note: Members of the surgical team may feel that some of these procedures cause them a moral/ethical conflict.

11. Care of patients with aseptically critical conditions

a. Patients include those who have:

- (1) Burns
- (2) Immune deficiencies such as HIV+
- (3) Transplant patients on immuno-suppression medication
- (4) Cancer patients on chemotherapy with immuno-compromised conditions

b. Special considerations for the surgical team:

(1) Psychosocial

- (a) Be nonjudgmental especially in the case of known HIV+ patients.
- (b) Be supportive.

(2) Physical

- (a) Transfer patient directly to the OR avoiding holding areas or areas where they could be exposed to other pathogens.
- (b) Pay strict attention to aseptic technique.
- (c) Use special medications as indicated.
- (d) Burn patients may need to be transferred on beds.

(3) Environmental — It may be necessary to increase the temperature in the OR, especially for burn patients.

Care of Patients With Special Needs
Unit 5-B

Assignment Sheet 1—Evaluate Case Studies and
Discuss Special Care Considerations for Patients with Special Needs

Name _____ Overall Rating _____

Evaluation criteria	Rating
Special needs are identified	_____
Special considerations/actions are identified	_____
Rationales for decisions are logical	_____

Introduction: The surgical team often deals with patients with special needs. To ensure quality care, it is important that the team is aware of these needs and the appropriate actions.

Directions: Read the assigned case studies and list the special needs and the appropriate special considerations/actions by the surgical team.

Case 1: A 40-year-old female from Saudi Arabia is scheduled for an emergency appendectomy. She speaks no English. She refuses to remove her head and face covers.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Assignment Sheet 1

Case 2: A 70-year-old male is scheduled to have a fractured hip repaired. He has Alzheimer's disease. He also wears a hearing aid.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Case 3: A 20-year-old male is brought from the emergency room with head trauma and profuse bleeding from a lacerated left leg.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Assignment Sheet 1

Case 4: A 28-year-old female is scheduled for a local right breast biopsy with frozen section. The doctor requests that the results of the frozen section be called in prior to the patient being taken out of the operating room.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Case 5: A 45-year-old male with burns covering his upper arms and face is scheduled for débridement and skin grafting of multiple burns and freeing of contractured left arm.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Assignment Sheet 1

Case 6: A 25-year-old female is scheduled for rhinoplasty and dermabrasion under local anesthesia.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Case 7: A 32-year-old male is admitted to the operating room for removal of broken glass from the anal canal.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Assignment Sheet 1

Case 8: A 14-year-old female is scheduled for a suction D&C. This is an elective abortion.

- a. List special needs. _____

- b. List special considerations/actions for the surgical team.

Case 9: A 7-year-old male hemophiliac is scheduled for a bronchoscopy. He has just been diagnosed as being HIV+.

- a. List special needs. _____

- b. List special considerations/actions for the surgical team.

Assignment Sheet 1

Case 10: An 80-year-old female is scheduled for an above-the-knee amputation of the right leg secondary to her diabetic condition.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Care of Chronic and Terminal Patients Unit 6-B

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss the requirements and considerations for the surgical team caring for the chronic and terminal patients. The student should demonstrate these competencies by completing the assignment sheet and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to care of chronic and terminal patients with their correct definitions.
2. Distinguish between chronic and terminal illnesses.
3. Complete statements concerning body aging processes which may lead to chronic problems.
4. Select true statements concerning special considerations in caring for the aging patient.
5. Describe the needs of the chronic and terminal patient.
6. Select true statements concerning special considerations in caring for chronic and terminal patients.
7. List three major body systems that fail and result in death.
8. Distinguish between clinical and biological death.
9. Match stages of the grieving process with the correct descriptions.
10. Complete statements concerning normal reactions to illness and disability.
11. Discuss feelings the surgical team may have after the death of a patient.
12. Distinguish between effective and ineffective coping mechanisms.

Objective Sheet

13. Match defense mechanisms with their correct descriptions.
14. Evaluate case studies and discuss special care considerations for chronic and terminal patients. (Assignment Sheet 1)

Care of Chronic and Terminal Patients Unit 6-B

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
5. Develop teaching plan. Adjust for different learning styles.
6. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

7. Provide students with unit of instruction.
8. Discuss unit and specific objectives.
9. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
10. Discuss the assignment sheet. Review criteria for evaluation of this activity.

Evaluation

11. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
12. Make copies of the written test. Add or modify test items as needed.
13. Give written test.
14. Compile assignment sheet rating and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.

Suggested Activities

15. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. Show videos dealing with death. See the "Suggested Supplemental Resources" section for information. Videos help reinforce **listening skills** and can serve as **motivation** for students to deal with the topic of death.
2. Invite a guest speaker from a local hospice program. This activity reinforces **organizational effectiveness** by allowing students to adapt to the organization's goals, values, culture, and traditional modes of operation.
3. Discuss the students' experiences with death and their present feelings about death. Group discussions can be very important in reinforcing **communication skills**. It gives students the opportunity to share their own thoughts and experiences.
4. Discuss ways the surgical team copes with death in the OR. This activity stresses **communication skills** and **career development**.
5. Discuss national customs for coping with death such as religious ceremonies, funerals, wakes, and death feasts. This activity reinforces **interpersonal relations** by giving students an insight into customs which may be different from their own.
6. Discuss local hospital policy and state legal requirements for handling a death in surgery. In some states, all surgical deaths must be investigated by the medical examiner who must be called immediately before anything is moved. You may want to have the medical examiner or other person from the office talk to the class about procedures to follow when a patient dies in the O.R. **Listening skills** are reinforced with this activity.
7. Discuss local hospital policy for the care and handling of a deceased patient including necessary reports and caring for the body. **Career development** will be stressed with this activity.
8. Discuss techniques (coping mechanisms) for dealing with stress. Have students describe the sources of stress in their lives and how they cope with stress. Students may learn new techniques from each other. **Communication skills** and **group effectiveness skills** can be reinforced.

Suggested Activities

Resources Used in Developing This Unit

1. American Heart Association. *Healthcare Provider's Manual for Basic Life Support*. 1990.
2. Atkinson, Lucy Jo. *Berry and Kohn's Introduction to Operating Room Technique*, 7th ed. St. Louis: Mosby-Year Book, Inc., 1992.
3. *Core Curriculum for Surgical Technology*. Littleton, CO: Association of Surgical Technologists, 1990.
4. Kalman, Natalie and Claire Waughfield. *Mental Health Concepts*. Albany, NY: Delmar Publishers, 1993.
5. Kubler-Ross, Elisabeth. *Death, The Final Stage of Growth*. Englewood Cliffs, NJ: Prentice Hall, 1975.
6. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby-Year Book, Inc., 1991.
7. *Mental Health*. Stillwater, OK: Oklahoma Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1991.
8. Taylor, Lillis, LeMone. *Fundamentals of Nursing*. Philadelphia: J. B. Lippincott Company, 1989.

Suggested Supplement Resources

1. *Until I Die*, 30 minutes. WTTW-TV, Chicago special. Dr. Elisabeth Kubler-Ross explains her work with terminally ill patients. Available from:

American Journal of Nursing Company
Educational Services Division
555 West 57th Street
New York, NY 10019-2961
800-CALLAJN (225-5256)
2. *Living Wills*, 30 minutes. Patients, families, and doctors present their views on living wills and advanced directives.
3. *The Biology of Death*, 29 minutes. Covers the state of current knowledge about death and its causes, including the normal aging process. Also discusses legal and social response to death and the role of society in investigating and regulating it.
4. *Coping With Childhood Cancer*, 28 minutes. Provides insight into coping mechanisms used by family members of childhood cancer patients.

Suggested Activities

5. *Accidents Do Happen*, 26 minutes. The producer of this program lost his only son in a fire. He talks with others about the anger, bewilderment, and grief experienced at the loss of a child.
6. *Thread of Uncertainty*, 26 minutes. The staff of a hospital talks frankly about how they cope working with children who have cancer.

2 - 6 are available from:

Films for the Humanities and Sciences
Box 2053
Princeton, NJ 08543-2053
800-257-5126 or 609-452-1128

7. *The Elderly Surgical Patient*, DG-1515. 21 minutes. 1985. Discusses the normal physiological, psychosocial, and emotional changes and needs of the elderly. Available from:

Cine-Med Distribution Center
Davis + Geck Video Library
P.O. Box 745
Woodbury, CT 06898
800-633-0004

8. *Natural Process of Aging*, M120. 30 minutes. 1993. Award winning video that explains how the aging process affects major body systems and functions.
9. *Psychosocial Care: The Cancer Patient*, 78008. 18 minutes. 1987. Examines the emotional, spiritual, and physical needs of terminally ill cancer patients and their families.
10. *Psychosocial Care: Coping With Loss*, 78009. 19 minutes. 1985. Through the story of an amputee, the concept of loss and grieving are explained.
11. *Relax*, 40 minutes. 1987. Presents techniques to overcome stress.

8 - 11 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Grove, CA 92641
800-877-1443 or 714-891-1443

12. *Assessing the Elderly: Normal Physiologic Changes*, 617.1. 23 minutes. Explores the major physiological changes that impact health assessment in the elderly.

Suggested Activities

13. *Coping Mechanisms*, 805.2. 25 minutes. Part of the Substance Abuse Series. Illustrates dysfunctional family roles and patterns which tend to support addictive behavior. Shows the professional helping the patient and family substitute adaptive coping mechanisms for maladaptive ones.
14. *Overview: What is Successful Aging? Part 1*, 128.1. 28 minutes. Examines the aging process in terms of its biological, psychological, social, and chronological components. Shows changes that occur as people age, some indicating decline, others growth and development.
15. *Concerning Death*, 132.8. 22 minutes. Due to advanced technology, patients, families, and caregivers are now involved in making decisions about when to allow a person to die. Discusses active and passive euthanasia.

12 - 15 are available from:

Concept Media
P.O. Box 19542
Irvine, CA 92713-9849
800-233-7078 or 714-660-0727

16. *Death and Dying Encyclopedia*, 120-page book compiled by experts on death and dying, with a glossary, index, appendices, and a bibliography. 148104-NU
17. *Living With Dying*, 2 filmstrips with cassettes entitled "Immortality" and "Acceptance." Explores the reasons for fear of death, life cycle, and the five emotional stages a dying person progresses through.
18. *Death: A Natural Part of Living*, 65-frame filmstrip with cassette that approaches death as a natural part of the life cycle.
19. *The Right to Die*, filmstrip with cassette. Explores the moral, legal, and practical implications of extending human life through medical technology.
20. *Care of the Terminally Ill*, filmstrip with cassette. Through a dramatized case study of a terminally ill patient, shows the five psychological stages common to the terminally ill.

16 - 20 are available from:

Opportunities for Learning, Inc.
941 Hickory Lane
P.O. Box 8103
Mansfield, OH 44901-8103
419-589-1700 or 800-243-7116

Suggested Activities

21. *Caregiving: The Normal Aging Process*, 41-minute video. Discusses normal changes that occur with aging.
22. *Communication and Counseling Skills for Hospice Care*, 13-minute video. Illustrates through vignettes the effects of proper and improper communication and counseling techniques on the terminally-ill patient.
23. *Older Adults: In Sickness and Health*, 16-minute video that presents attitudes of older adults toward their own health or sickness and toward healthcare expenditures.

21 - 23 are available from:

Health Sciences Consortium
201 Silver Cedar Court
Chapel Hill, NC 27514-1517
919-942-8731

24. *Sensory Changes/Elderly*. 19 minutes. Overview of the most common sensory changes in older people.
25. *Medicating the Geriatric Patient*. 24 minutes. How aging processes affect the body's ability to process drugs.

24 and 25 are available from:

Fairview Audio-Visuals
17909 Groveland Avenue
Cleveland, OH 44111
216-476-7054

26. *Death and Dying*. 59 minutes. 1980. Discusses using medical technology to prolong life. Also looks at the hospice movement.
27. *Death and Dying: A Conversation with Elisabeth Kubler-Ross, M.D.* 29 minutes. 1976. Discusses the work and philosophy of Kubler-Ross in the care of dying patients and their families.

26 and 27 are available from:

PBS VIDEO
1320 Braddock Place
Alexandria, VA 22314-1698
800-424-7963

Care of Chronic and Terminal Patients
Unit 6-B

Answers to Written Test

1. a. 13 d. 4 g. 3 j. 11
 b. 7 e. 2 h. 8 k. 1
 c. 6 f. 15 i. 10 l. 14
2. b, e, f
3. a. Decrease
 b. Decrease
 c. Porous
 d. Poor
 e. Decrease
 f. Decreased
 g. Decrease
4. a. T e. T
 b. T f. T
 c. F g. F
 d. T
5. Description should include any two of the following: (in the student's own words)
 - a. **Physiological needs** — Involves meeting physical needs including personal hygiene, nutritional and fluid needs, and pain control
 - b. **Psychological needs** — Involves fear of unknown, pain, separation, leaving loved ones, loss of dignity, and unfinished business
 - c. **Spiritual needs** — Involves patients finding comfort and support in their religious faith. Most people need to feel that their lives have meaning. There is a need for hope in the face of death or chronic illness.
6. a. T
 b. F
 c. T
 d. T
7. Cardiovascular, renal, and respiratory
8. a
9. a. 4 d. 5
 b. 2 e. 3
 c. 1

Answers to Written Test

10. a. Denial
b. Anger
c. Bargain
d. Depression
e. Accept
11. Discussion should include:
- a. Sadness — Especially if team members were personally involved with the patient
 - b. Sympathy — For the patient's family
 - c. Guilt — If they feel that they personally failed in their care of the patient
 - d. Frustration — If they feel their profession or institution has failed the patient
 - e. Fear — For their own death
12. b, c, e, i
13. a. 7 d. 4 g. 6
b. 3 e. 8 h. 2
c. 5 f. 1

Care of Chronic and Terminal Patients
Unit 6-B

Written Test

Name _____

Score _____

1. Match the terms on the right with their correct definitions.

- | | | |
|----------|--|-----------------------|
| _____ a. | Projection of the course and end of a disease, and the estimate of chance for recovery | 1. Aging |
| _____ b. | Emotional condition characterized by extreme sadness, gloom, feelings of worthlessness, and loss of hope | 2. Anxiety |
| _____ c. | Habitual behaviors or patterns of behavior that allow people to avoid experiencing anxiety or psychological threat | 3. Atrophy |
| _____ d. | Attempt to deal with unpleasant, uncomfortable, unknown, stressful, or anxiety-producing situations | 4. Coping |
| _____ e. | Emotional condition characterized by apprehension, worry, and distress regarding some past event or future uncertainty | 5. Death |
| _____ f. | Pertaining to the end | 6. Defense mechanisms |
| _____ g. | Wasting; a decrease in size of an organ or tissue | 7. Depression |
| _____ h. | Emotion of sorrow, sadness, or anguish usually related to the death or loss of someone or something that was much loved, respected, and/or highly regarded | 8. Grief |
| _____ i. | Sexual drive, conscious or unconscious | 9. Hospice care |
| | | 10. Libido |
| | | 11. Mourning |
| | | 12. Porous |
| | | 13. Prognosis |
| | | 14. Skin turgor |
| | | 15. Terminal |

Written Test

- _____ j. Expressing grief and sorrow for a person's death, especially those outward expressions of grief such as wearing black clothing or an armband
 - _____ k. Process of growing old
 - _____ l. Resistance of the skin to deformation
2. Distinguish between chronic and terminal illnesses by placing an "X" next to the descriptions of chronic illness.
- _____ a. Marked by short duration
 - _____ b. Shows little change and progresses slowly
 - _____ c. An example of this type of illness would be cancer.
 - _____ d. Causes the patient to die
 - _____ e. An example of this type of illness would be diabetes.
 - _____ f. Marked by long duration or frequent recurrence
3. Complete the following statements concerning body aging processes which may lead to chronic problems by circling the correct answers.
- a. (Decrease, Increase) in skin turgor causes a breakdown of skin.
 - b. (Decrease, Increase) in blood supply to kidneys decreases the filtration ability and makes the patient susceptible to infections.
 - c. Bones become (more compact, porous).
 - d. Decrease in gastric secretions and absorption of nutrients results in a (good, poor) nutritional state.
 - e. (Decrease, Increase) in cardiac strength and accumulation of fatty deposits around the heart results in problems with arteriosclerosis, hypertension, and arrhythmias.
 - f. Functional capacity of the respiratory system decreases with (decreased, increased) resistance to respiratory infections or problems.
 - g. Atrophy of reproductive organs causes a/an (decrease, increase) of hormones which may cause symptoms of fatigue, weight loss, and decrease in libido.

Written Test

4. Select true statements concerning special considerations in caring for the aging patient by placing a "T" or "F" next to the true or false statements.

- _____ a. Patients need to be lifted, not pulled, during transfer to and from the operating table since skin is thin and sensitive.
- _____ b. Patients must be positioned carefully on the operating room table to prevent pressure points.
- _____ c. Aging patients are very resistant to infection. Therefore, strict aseptic technique is unnecessary.
- _____ d. Aging patients have a diminished and slower blood flow; therefore, they are more inclined to thrombus formation and may require antiembolic stockings.
- _____ e. Aging patients need to be handled gently, but firmly, without rushing them. Assistance should be offered, but if possible, allow patients to be as independent as possible.
- _____ f. Extra precautions may be needed to preserve the patient's body temperature such as warming fluids.
- _____ g. Aging patients do not present special challenges to the anesthesiologist. In fact, they are less prone to complications.

5. Describe two needs of the chronic and terminal patient.

- a. _____

- b. _____

Written Test

6. Select true statements concerning special considerations in caring for the chronic and terminal patients by placing a "T" or "F" next to the true or false statements.

- _____ a. Patients with chronic and terminal illnesses may experience various emotions and feelings making them argumentative and hard to deal with.
- _____ b. Family members should not be a part of the patient's care.
- _____ c. Patients should be allowed to maintain respect and dignity.
- _____ d. Common emotional reactions of chronic and terminal patients include anger, grief, and despair.

7. List three major body systems that fail and result in death.

- a. _____
- b. _____
- c. _____

8. Distinguish between clinical and biological death by placing an "X" next to the description of biological death.

- _____ a. Irreversible; permanent brain death due to lack of oxygen; no circulation to the brain
- _____ b. When evidence of life (respirations and heartbeat) is absent; may be reversible in some instances if CPR or other appropriate measures are instituted very promptly

9. Match stages of the grieving process on the right with the correct descriptions.

- | | |
|--|---------------|
| _____ a. Patient does not believe the diagnosis. Seeks no information about the disease. Ignores the loss. | 1. Acceptance |
| _____ b. Patient is typically hostile, mad, frustrated, and possibly guilty. | 2. Anger |
| _____ c. Final stage when patient resumes normal activities or resolves conflicts about approaching death. | 3. Bargaining |
| | 4. Denial |
| | 5. Depression |
| | 6. Fear |

Written Test

- _____ d. Patient begins to accept loss or death, but also feels loneliness, grief, and deep sadness
 - _____ e. Patient attempts to make a deal with themselves, their doctors, or their deity in order to regain what they have lost or to lessen the severity of the loss.
10. Complete the following statements concerning normal reactions to illness and disability by filling in the blanks with the correct answers.
- a. A common first reaction to physical illness or disability is when people go through a period of numbness. This is called _____.
 - b. After this stage, they then usually feel _____. They may begin to accept their illness, but not its limitations.
 - c. They then begin to _____ with themselves, their doctors, or their deity for a better deal.
 - d. When they become aware of the totality of their situation, they may suffer a period of _____.
 - e. Finally, they _____ the illness or disability and restructure their thoughts, expectations, and goals to include the new situation.
11. Discuss feelings the surgical team may have after the death of a patient.

Written Test

12. Distinguish between effective and ineffective coping mechanisms by placing an "X" next to those that are effective.

- _____ a. Aggression
- _____ b. Hobbies
- _____ c. Exercise
- _____ d. Withdrawal
- _____ e. Stress removal
- _____ f. Drug abuse
- _____ g. Denial
- _____ h. Compensation
- _____ i. Relaxation
- _____ j. Conversion

13. Match defense mechanisms on the right with their correct descriptions.

- | | |
|--|-----------------------|
| _____ a. Channeling of strong and socially unacceptable behaviors into a form that is accepted by society | 1. Displacement |
| _____ b. Conscious method of finding a logical excuse or reason for things one wants to do or a reason for not doing what one doesn't want to do | 2. Projection |
| _____ c. Retreat from the present pattern of behavior to a previous level of behavior that appears more comfortable or safer to the individual | 3. Rationalization |
| _____ d. The development of conscious attitudes and behavior patterns that are opposite to one's real feelings and desires | 4. Reaction formation |
| | 5. Regression |
| | 6. Repression |
| | 7. Sublimation |
| | 8. Suppression |
| | 9. Withdrawal |

Written Test

- _____ e. Consciously pushing unwelcome ideas, memories, or feelings back into the subconscious mind. They are accessible when one wishes to remember them.
- _____ f. Transference of emotions from original object, situation, or idea to another (usually more acceptable) object, situation, or idea
- _____ g. Unconscious exclusion from awareness of unbearable ideas, experiences, and impulses by forcing them down into the unconscious
- _____ h. Blaming someone else for one's own perceived faults, shortcomings, inadequacies, or failures

*Permission to duplicate this test is granted.

552

Care of Chronic and Terminal Patients
Unit 6-B

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Evaluate Case Studies and Discuss
Special Care Considerations for Chronic and Terminal Patients Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

553

*Permission to duplicate this form is granted.

Care of Chronic and Terminal Patients Unit 6-B

Information Sheet

1. Terms and definitions

- a. **Aging** — Process of growing old
- b. **Anxiety** — Emotional condition characterized by apprehension, worry, and distress regarding some past event or future uncertainty
- c. **Atrophy** — Wasting; a decrease in size of an organ or tissue
- d. **Coping** — Attempt to deal with unpleasant, uncomfortable, unknown, stressful, or anxiety-producing situations
- e. **Death** — Permanent cessation of all vital functions; the loss of brain stem and spinal reflexes with flat encephalogram over 24 hours
- f. **Defense mechanisms** — Habitual behaviors or patterns of behavior that allow people to avoid experiencing anxiety or psychological threat
- g. **Depression** — Emotional condition characterized by extreme sadness, gloom, feelings of worthlessness, and loss of hope
- h. **Grief** — Emotion of sorrow, sadness, or anguish usually related to the death or loss of someone or something that was much loved, respected, and/or highly regarded
- i. **Hospice care** — Care similar to that in a hospital, except that is specifically designed for the terminally ill

Note: The goal of hospice care is to allow the client to die a natural death with dignity and as free of pain as possible.
- j. **Libido** — Sexual drive, conscious or unconscious
- k. **Mourning** — Expressing grief and sorrow for a person's death, especially those outward expressions of grief such as wearing black clothing or an armband
- l. **Porous** — Full of openings
- m. **Prognosis** — Projection of the course and end of a disease, and the estimate of chance for recovery
- n. **Skin turgor** — Resistance of the skin to deformation

Note: The skin of a young healthy person when pinched will return to its normal appearance immediately, but the skin of an older person returns much more slowly.
- o. **Terminal** — Pertaining to the end

Information Sheet

2. Differences between chronic and terminal illnesses

a. Chronic illness

- (1) Marked by long duration or frequent recurrence
- (2) Shows little change and progresses slowly
- (3) Examples include:
 - (a) Diabetes
 - (b) Emphysema
 - (c) Asthma
 - (d) Glaucoma
 - (e) Aging processes and disabilities

b. Terminal illness

- (1) Because of the nature of the disease causes the patient to die
- (2) Usually is a chronic disease for which there is no known cure
- (3) Examples include:
 - (a) AIDS
 - (b) Cancer

3. Body aging processes which may lead to chronic problems

- a. Decrease in skin turgor causes a breakdown of skin. Injuries to the skin do not heal rapidly.
- b. Decrease in blood supply to kidneys decreases the filtration ability and makes the patient susceptible to infections.
- c. Bones become porous, with less density. Fractures may occur easily.
- d. Decrease in gastric secretions and absorption of nutrients results in a poor nutritional state.
- e. Loss of hearing and vision makes communication difficult.

Information Sheet

- f. Decrease in cardiac strength and accumulation of fatty deposits around the heart results in problems with arteriosclerosis, hypertension, and arrhythmias.
 - g. Progressive loss of nerve cells affect mental abilities, reflex actions, and temperature regulation.
 - h. Functional capacity of the respiratory system decreases with decreased resistance to respiratory infections or problems.
 - i. Atrophy of reproductive organs causes reduction of hormones which may cause symptoms of fatigue, weight loss, and decrease in libido.
4. **Special considerations in caring for the aging patient**
- a. Patients need to be lifted, not pulled, during transfer to and from the operating table since skin is thin and sensitive.
 - b. Patients must be positioned carefully on the operating room table to prevent pressure points. Extra pillows, blankets, and padding may be needed.
 - c. Aging patients are very susceptible to infection; therefore, strict aseptic technique is essential.
 - d. Aging patients have a diminished and slower blood flow; therefore, they are more inclined to thrombus formation and may require antiembolic stockings.
 - e. Aging patients may be mentally confused for a variety of reasons, so it is important to speak slowly and distinctly.
 - f. Many aging patients experience problems with hearing, making it important for you to speak loudly and clearly.
 - g. Aging patients need to be handled gently, but firmly, without rushing them. Assistance should be offered, but if possible, allow patients to be as independent as possible.
 - h. Extra precautions may be needed to preserve the patient's body temperature such as:
 - (1) Raising the room temperature.
 - (2) Applying warm blankets when patient arrives and leaves the OR.
 - (3) Using a hypo-hyperthermia mattress or reflective blanket on operating table.

Information Sheet

- (4) Warming irrigating and intravenous fluids, including blood.

Note: Anesthetic gases can be warmed also.

- (5) Keeping patient covered as much as possible during positioning and prepping to limit skin exposure.
- (6) Minimizing time of exposure between skin antisepsis and draping procedures.
- (7) Leaving cap on patient after operation.
- i. Specialized monitoring equipment and temperature control units may be used on aging patients to more closely monitor their vital signs and alert the OR team to any emergencies.
- j. Blood loss must be monitored and promptly replaced.
- k. Aging patients present special challenges to the anesthesiologist because
 - (1) Fit of mask may be difficult due to loss of teeth.
 - (2) They are more prone to postoperative complications such as hypotension, hypothermia, cerebral edema, and hypoxemia.

5. Needs of the chronic and terminal patient

- a. **Physiological needs** — Involves meeting physical needs including personal hygiene, nutritional and fluid needs, and pain control
- b. **Psychological needs** — Involves fear of unknown, pain, separation, leaving loved ones, loss of dignity, and unfinished business
- c. **Spiritual needs** — Involves patients finding comfort and support in their religious faith. Most people need to feel that their lives have meaning. There is a need for hope in the face of death or chronic illness.

Note: The family of chronic and terminal patients also need to verbalize their worries and concerns about the patient's prognosis.

Information Sheet**6. Special considerations in caring for chronic and terminal patients**

- a. Patients with chronic and terminal illnesses may experience various emotions and feelings making them argumentative and hard to deal with.
- b. Emotional reactions these patients commonly experience include:
 - (1) Anxiety
 - (2) Anger
 - (3) Grief
 - (4) Hope
 - (5) Shame
 - (6) Guilt
 - (7) Loneliness
 - (8) Despair
 - (9) Depression
 - (10) Helplessness
 - (11) Envy

Note: Families and healthcare staff may also experience these emotions.

- c. Allow family members to be a part of the patient's care.
- d. Allow patient to maintain respect and dignity.

7. Major body systems that fail and result in death

- a. Cardiovascular
- b. Renal
- c. Respiratory

Information Sheet

8. Clinical and biological death

a. Clinical death

- (1) When evidence of life (respirations and heartbeat) is absent
- (2) May be reversible in some instances if CPR or other appropriate measures are instituted very promptly

b. Biological death

- (1) Irreversible
- (2) Permanent brain death due to lack of oxygen
- (3) No circulation to the brain

Note: This is FINAL. The following characteristics must be present for at least 24 hours before death can be declared: (a) lack of receptivity and responsiveness, (b) lack of movement or breathing, (c) lack of reflexes, and (d) flat encephalogram.

9. Stages of grieving process

Note: These are the stages that patients commonly go through when they are informed that they have a terminal illness or have a major loss in their lives. Not all patients go through each stage, not all go through it in this order, and some go through stages more than once. Others may never reach the final stage. These five stages have been identified by Elisabeth Kubler-Ross in her extensive research on grief.

a. Denial

- (1) At this stage, the loss has not yet sunk in and is likely to be ignored and not acknowledged.
- (2) A person may appear to be functioning fine but may be disregarding the actuality of the loss.
- (3) Patient does not believe the diagnosis.

Examples: "It can't be. The doctor must be wrong."

Information Sheet

- (4) Patient may not follow medical advice for various reasons.

Note: By following the advice, they would be admitting that they are ill, and at this point, they do not believe they are.

- (5) Patient seeks no information about the disease.

b. Anger

- (1) During this stage, people express a great deal of anger at themselves, significant others, members of the health care community, and at life in general.
- (2) Resentment may also be expressed regarding the unfairness of the situation.
- (3) This anger is typically expressed in a very hostile, aggressive, and personal way but should not be taken personally by the health care professional.
- (4) Patient questions why the situation is happening to him/her.

Examples: "Why me? What did I do to deserve this?"

- (5) Patient feels frustration and anger, but may or may not express it.
- (6) Patient may feel guilty.

Examples: For not following medical advice, for not quitting smoking or drinking, for some past sins

c. Bargaining

- (1) In this stage people attempt to "make a deal" in order to regain what they have lost or to lessen the severity of the loss.
- (2) They may attempt to bargain with themselves, their doctor, or their deity.
- (3) Patient maintains hope for recovery.
- (4) Patient may set goals for acts he/she wishes to occur before death.

Information Sheet

d. Depression

- (1) In this stage, the loss is accepted and the active denial, anger, and bargaining ceases. However, with the initial acceptance comes despair.
- (2) People experience all of the implications of the loss, such as withdrawal, loneliness, grief, anguish, deep sorrow, and sadness.
- (3) Patient realizes that he/she is going to die and that nothing can stop it.

e. Acceptance

- (1) The final stage is when people recognize that they must move forward in their lives.
- (2) They must resume their normal activities or initiate new activities; they must reestablish relationships or develop new ones.
- (3) Patient is able to resolve his/her emotional conflicts about the approaching death.
- (4) Patient reviews his/her life and sees it as good and meaningful.

Note: If patients do not see their life as good, they have problems accepting death. They may go back to an earlier stage to further prepare them.

- (5) Patient displays serenity.

Note: These are also the stages of grieving that the patient's family will go through. If the patient's illness is prolonged, they may begin to grieve before the patient dies, and may already be at the acceptance stage when the patient does die.

10. Normal reactions to illness and disability

Note: When people have an illness or disability, they go through a similar process as when dealing with grief. They may feel a sense of loss during the duration of the illness or disability such as the loss of health, loss of mobility, loss of abilities, etc.

- a. **Denial** — People typically go through a period of numbness or denial when they do not want to accept the reality of their illness or disability. They may continue to try to function at their previous level or may deny the reality of their loss.
- b. **Anger** — Victims of an illness or a disability will experience a time of intense anger, frustration, and anxiety. They become mindful of the illness or disability, but do not want to accept the limitations placed on them.

Information Sheet

- c. **Bargaining** — They may attempt to bargain with themselves, their doctors, or their deity in order to get "a better deal".
 - d. **Depression** — Eventually, they become aware of the totality of their situation and may suffer a period of sadness or depression.
 - e. **Acceptance** — Finally, they accept the illness or disability and restructure their thoughts, expectations, and goals to include the new situation.
11. **Feelings the surgical team may have when caring for a chronic or terminal patient**
- a. Sadness — Especially if team members were personally involved with the patient
 - b. Sympathy — For the patient's family
 - c. Guilt — If they feel they personally failed in their care of the patient
 - d. Frustration — If they feel their profession or institution has failed the patient
 - e. Fear — For their own death

Note: When a patient dies, the surgical team is reminded of their own mortality which they may or may not want to face.

12. Coping mechanisms

- a. **Effective coping mechanisms**
 - (1) **Stress removal** — Removing the source of the anxiety or removing ourselves from that situation

Example: A woman who works in a job she does not like, quits her job and obtains a new, more pleasant job.
 - (2) **Relaxation** — Techniques and exercises that ease body tension and control conscious thoughts

Example: A college student who doesn't get along with his roommate performs deep breathing relaxation exercises daily.

Information Sheet

- (3) **Exercise** — Physical activity that works muscles and uses energy to develop or maintain physical fitness; endorphines are also produced which improve your mood

Example: A surgeon plays tennis several times a week in order to deal with the stress of her professional position.

- (4) **Hobbies** — Activities outside your regular occupation done for fun and relaxation

Examples: A woman who just lost her mother begins taking music lessons. A man goes on bird watching expeditions after retirement.

b. Ineffective (or short-term) coping mechanisms

- (1) **Withdrawal** — Abandoning or refusing to deal with a situation without removing the stressful situation

Example: A college student who is having difficulty with school begins watching television every evening.

- (2) **Aggression** — A violent act intended to reduce the anxiety or the unpleasantness without changing the situation

Example: A woman becomes angry at a police officer and repeatedly hits him.

- (3) **Drug abuse** — The use of alcohol or other drugs to ignore, forget, or attempt to change negative feelings, thoughts, or situations

Example: A man begins to get drunk several times a week after his wife is killed in a car wreck.

- (4) **Conversion** — Process by which an emotional conflict is expressed as a physical problem

Example: A woman with elderly parents, who demand a lot of her time, begins to feel numbness in her legs and is unable to attend to her parents.

- (5) **Denial** — Refusal to recognize and accept the reality of one's own thoughts, feelings, or actions, or those of significant others

Example: After a child is hit by a car and knocked unconscious, she is taken to the emergency room. Her father tells his friends and relatives that she is "fine, just a few scratches."

Information Sheet

- (6) **Identification** — Unconscious patterning of one's self after the characteristics of another

Example: A teenager begins to dress and behave like a famous athlete.

- (7) **Compensation** — Development of beliefs or personality traits as a means of making up for perceived inadequacies

Examples: The daughter of a religious leader becomes sexually promiscuous. The son of a school administrator or teacher "forgets" to study for tests.

13. Defense mechanisms

Note: Defense mechanisms are ways that people react to stressful situations. They don't change the situation, but are attempts to help people manage their anxiety regarding the situation. Everyone uses defense mechanisms at various times and in various situations. However, it is when we use one or more defense mechanisms in all anxiety-producing situations and do not address the root issue behind the anxiety that they become problematic.

- a. **Suppression** — Consciously pushing unwelcome ideas, memories, or feelings back into the subconscious mind. They are accessible when one wishes to remember them.

Example: A woman suppresses memories of an intolerable first marriage as she attempts to begin a new relationship.

- b. **Repression** — Unconscious exclusion from awareness of unbearable ideas, experiences, and impulses by forcing them down into the unconscious. Sometimes this material may emerge in the form of hallucinations or dreams.

Example: A woman does not recall being the victim of sexual abuse as a young child.

- c. **Rationalization** — Conscious method of finding a logical excuse or reason for things one wants to do or a reason for not doing what one doesn't want to do

Example: A man purchases a new boat he really cannot afford. He says that it is a good buy because he will be using it to catch fish the family can use as food.

Information Sheet

- d. **Regression** — Retreat from the present pattern of behavior to a previous level of behavior that appears more comfortable or safer to the individual

Example: Upon the birth of a sibling, a young boy begins to display behaviors, such as thumb sucking, that he had previously quit.

- e. **Sublimation** — Channeling of strong and socially unacceptable behaviors into a form that is accepted by society

Example: A young man who displays an explosive temper becomes a boxer.

- f. **Projection** — Blaming someone else for one's own perceived faults, shortcomings, inadequacies, or failures

Example: A woman who feels incompetent to complete an assigned task expresses doubts about the competence of co-workers.

- g. **Displacement** — Transference of emotions from original object, situation, or idea to another (usually more acceptable) object, situation, or idea

Example: A man who feels angry at his wife for not cooking a dinner he likes will yell at his children for not keeping their rooms clean.

- h. **Reaction formation** — The development of conscious attitudes and behavior patterns that are opposite to one's real feelings and desires

Example: A married man who is attracted to one of his wife's best friends may be very rude to that friend.

Care of Chronic and Terminal Patients Unit 6-B

Assignment Sheet 1—Evaluate Case Studies and Discuss Special Care Considerations For Chronic and Terminal Patients

Name _____ Overall Rating _____

Evaluation criteria	Rating
Special needs are identified	_____
Special considerations/actions are identified	_____
Rationales for decisions are logical	_____

Introduction: The surgical team often deals with chronic and terminal patients. To ensure quality care, it is important that the team is aware of their special needs and the appropriate actions needed to care for them.

Directions: Read the assigned case studies and list the special needs and the appropriate special considerations/actions required of the surgical team.

Case 1: Mr. Smith, a 75-year-old male, has degenerative joint disease of the right hip. His surgeon has scheduled him for a total right hip replacement.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Assignment Sheet 1

Case 2: Mrs. Jones, an 80-year-old female, has been diagnosed with cancer of the colon. She was admitted into the emergency room with an intestinal obstruction. Dr. White performed an exploratory laparotomy and colostomy to relieve the obstruction.

a. List special needs. _____

b. List special considerations/actions for the surgical team.

Operating Room Furniture and Equipment Unit 1-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to identify basic operating room furniture and equipment, complete statements concerning their uses, and position the grounding pad and connect the electrosurgical unit. The student should demonstrate these competencies by completing the job sheet and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to operating room furniture and equipment with their correct definitions.
2. Identify basic operating room furniture.
3. Identify basic operating room equipment.
4. Select true statements concerning the uses of the surgical table and its attachments.
5. Match additional operating room furniture with the correct descriptions.
6. Match operating room equipment with the correct descriptions.
7. Complete statements concerning the functioning of electrosurgical units.
8. Select true statements concerning placement of the grounding pad.
9. Describe safety standards for electrosurgical units.
10. Position grounding pad and connect electrosurgical unit. (Job Sheet 1)

Operating Room Furniture and Equipment Unit 1-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Surgical Tables (Objective 4)
TM 2—Sections of the Surgical Table (Objective 4)
TM 3—Electricity Circuit for Electrosurgery (Objective 7)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of the Unit Evaluation Form, which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the student supplement. This could be used with Job Sheet 1.
12. Discuss and demonstrate the job sheet. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of this activity.

Suggested Activities

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce the unit, make a display of operating room furniture, equipment, and table accessories. These could be actual items or pictures from brochures or catalogs.
2. If equipment is unavailable in your laboratory and if time permits, take a field trip to an area hospital's operating room. This is a good chance for students to see first hand this expensive equipment in operation. Request that the students take notes on the following:
 - a. What equipment is basic to the operating room and which equipment is considered accessory?
 - b. How many different electrosurgical units were seen? What types were they?
 - c. Which operating room table attachments are used most often?
 - d. What equipment not covered in this unit did you see? What is it used for?

Discuss their answers when you return to the classroom. **Foundation skills, communication skills, adaptability skills**

Suggested Activities

3. Demonstrate to the students how to do the following procedures on the operating room table:
 - a. Lock and unlock the table.
 - b. Raise and lower the table.
 - c. Tilt table right and left.
 - d. Crank table into Trendelenburg and reverse Trendelenburg position.
 - e. Break the table at its various joints pointing out that these joints can be "pinch" points to the patient.
 - f. Connect the various table attachments.

Now allow students time to practice these procedures under supervision. **Influence skills**

4. Have the students take turns assuming the role of the patient on the operating room table while it is being moved (suggestion 3 above). (Make sure safety straps are in place). This may enhance the students' empathy for the surgical patient. **Group effectiveness skills, influence skills**
5. Demonstrate for the students how to connect a patient to the electrocardiograph monitor. (See Teacher Supplement 1.)
6. Demonstrate for the students how to connect the nitrogen, regulator, and power hose on a portable tank and wall outlet.
7. Obtain a copy of a local hospital's "policies and procedures" manual concerning the use of electrosurgical units. Discuss with the students specific procedures or information that may vary from the information included in this unit.
8. Discuss accidents you have seen involving the misuse of operating room furniture and equipment. These could be with patients or surgery personnel and could include falls, burns, pinches, and shocks. Stress the importance of safety in the operating room. **Communication skills, influence skills**

Resources Used in Developing This Unit

1. *Accessories for Series Tables 16514*. Erie, PA: AMSCO (American Sterilizer Company).

Suggested Activities

2. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nursing, 1992.
3. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
4. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: C. V. Mosby Co., 1982.
5. Groah, L. K. *Operating Room Nursing*. Reston, VA: Reston Publishing Co., 1983.

Suggested Supplemental Resources

1. Videotapes
 - a. *A Line of Defense—Viral Precautions in the OR*, 1992, 15 minutes.
 - b. *Potential Electrical Hazards in the Operating Room*, 1973, 20 minutes.
 - c. *A Laser Safe Environment*, 1987, 16 minutes.

a-c are available from:

Cine-Med Distribution Center
Davis + Geck Video Library
P.O. Box 745
Woodbury, CT 06798
800-633-0004

 - d. *The Hazards of Surgical Smoke*, videotape and workbook designed to protect the surgical team from the smoke generated during electrosurgery and laser procedures. Available from:

Stackhouse Educational Services
2059 Atlanta Avenue
Riverside, CA 92507-9869
800-325-0082
2. *Electrosurgery Safety Seminar*, 1991, 20 minutes, pre and post tests. Only available through 3M representatives. Order number: C-302 (1/2" video) Call: 3M Health Care Customer Service at 800-327-5380.

Suggested Activities

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

- Yes—Can perform job with no additional training.
- No—Is unable to perform job satisfactorily.

Operating Room Furniture and Equipment Unit 1-C

Answers to Written Test

1. a. 5 e. 8
 b. 4 f. 7
 c. 3 g. 1
 d. 2 h. 9

2. a. Back table
 b. Ring stand
 c. Linen hamper and trash container
 d. Kick bucket
 e. Sitting stool
 f. Operating room table
 g. Mayo stand
 h. Foot stool, platform, or lift
 i. Table extension
 j. Armboard

3. a. Anesthesia machine
 b. Lighting devices
 c. X-ray illumination light
 d. Wall outlets (suction, gas, electrical shown)
 e. Electrosurgical unit
 f. Surgeon's headlight
 g. Cardiac monitor and defibrillator
 h. Surgeon's loupes

4. a. T d. F g. T
 b. F e. F h. T
 c. T f. F i. F

5. a. 7 d. 10 g. 6
 b. 9 e. 5 h. 12
 c. 2 f. 8

6. a. 6 d. 12 g. 9 j. 3
 b. 2 e. 10 h. 13 k. 4
 c. 5 f. 8 i. 11

Answers to Written Test

7. a. Electrical current
b. Active and inactive
c. Foot
d. Patient grounding pad
e. Bipolar
f. Inactive electrode
g. One of the following:
- (1) Patient contact with metal table, conductive mattress, or conductive restraint strap attached to the metal table
 - (2) Cardiac monitor leads
 - (3) Pools of prep solutions under the patient
8. a. T
b. F
c. T
d. T
9. Any five of the following: (in student's own words)
- a. ESU should be designed to prevent unintentional activation.
 - b. ESU cord should be long enough to reach electrical outlet without undue stress.
 - c. Extension cords should not be used with an ESU.
 - d. ESU should be mounted on a movable stand that will not tip over.
 - e. Each ESU should have an identification number for documentation.
 - f. ESU should not be used around flammable agents.
 - g. ESU must be kept clean and protected from spills.
 - h. ESU should be inspected for damage, frays, or flaws before use.
 - i. ESU pencil is kept in a clean, dry, non-conductive safety holster which is impervious to fluids.
 - j. Patient's skin should be inspected for burns before and after use of an ESU.
 - k. If injury occurs, ESU and active and inactive (dispersive) electrodes should be removed from the OR and sent for a full investigation.

Operating Room Furniture and Equipment Unit 1-C

Written Test

Name _____

Score _____

1. Match terms on the right with the correct definitions.

- _____ a. Process of drying; to cause tissue destruction by drying
- _____ b. Process of depriving or losing water, causes drying of tissues
- _____ c. Process of clotting
- _____ d. Destroying tissue by burning using chemical, thermal, or electrical means
- _____ e. Flexible material made of glass or plastic which transmits light along its course by reflecting it from the side or wall of the fiber; permits transmission of light and therefore, visual images around corners
- _____ f. Passage of high frequency, oscillating electric currents through tissue between two electrodes to coagulate or cut tissue
- _____ g. Spark-gap tube generator used before solid state cautery units became available
- _____ h. Light given off by an electrically heated filament in a glass bulb

- 1. Bovie
- 2. Cauterization
- 3. Coagulation
- 4. Dehydration
- 5. Desiccation
- 6. Electrocautery
- 7. Electrosurgery
- 8. Fiberoptic
- 9. Halogen
- 10. Incandescent

Written Test

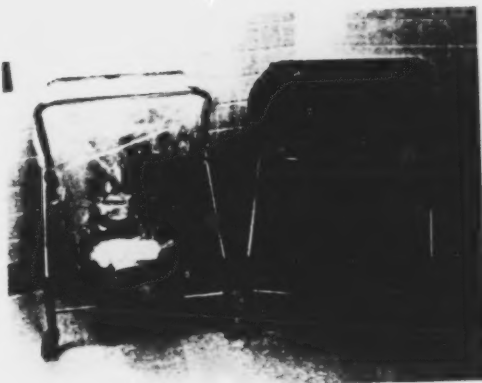
2. Identify the following basic operating room furniture.



a. _____



b. _____



c. _____



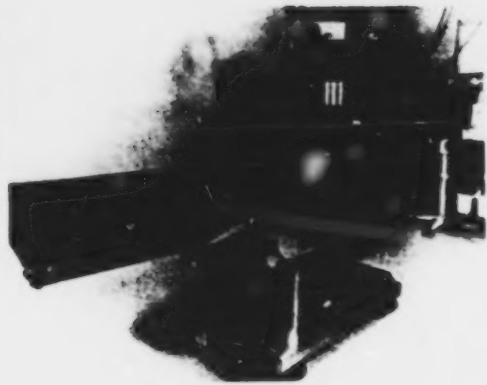
d. _____

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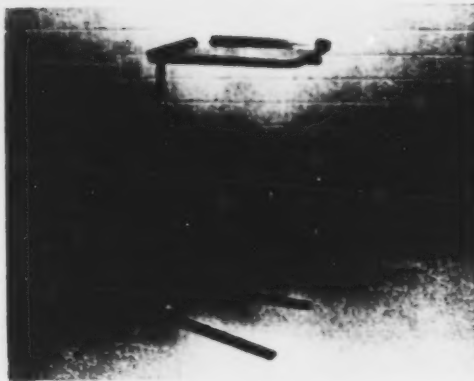
Written Test



e. _____



f. _____



g. _____



h. _____

Written Test

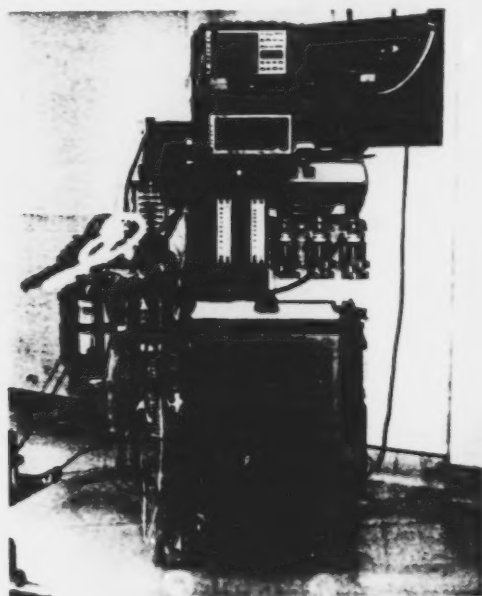


i. _____



j. _____

3. Identify the following equipment needed in each operating room.

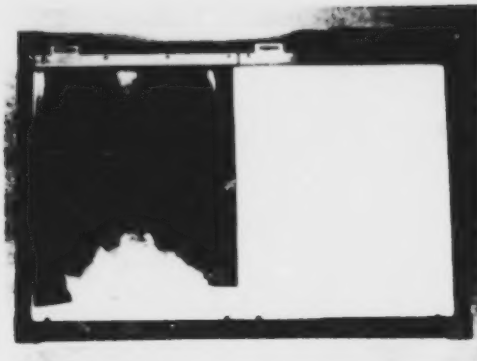


a. _____

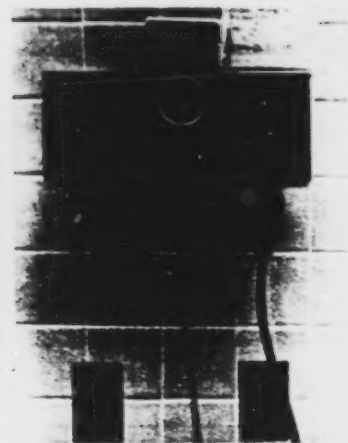


b. _____

Written Test



c. _____



d. _____

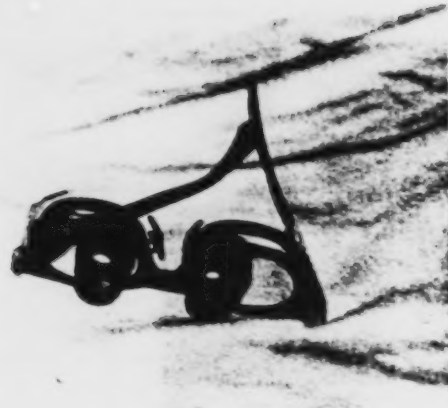
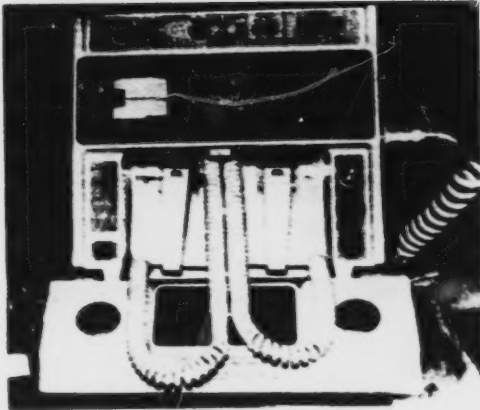


e. _____



f. _____

Written Test



g. _____ h. _____

4. Select true statements concerning the uses of the surgical table and its attachments by placing a "T" next to the true statements and an "F" next to the false statements.

- _____ a. The surgical table has a metal top, divided into movable sections.
- _____ b. The sections can be tilted, but the entire table cannot be tilted.
- _____ c. The joints between the sections are called "breaks."
- _____ d. The space between the metal table and mattress provides a space for storing instruments.
- _____ e. All surgical tables are manually controlled.
- _____ f. The posture selector on the surgical table governs the degree of Trendelenburg.
- _____ g. Legholders are used to elevate and abduct legs for vaginal, rectal, and cystoscopic procedures.
- _____ h. Anesthesia screen is used to separate sterile field from nonsterile anesthesia field; also used to keep drapes from covering the patient's face.
- _____ i. Shoulder braces are used to prevent patient from sliding when placed in reverse Trendelenburg position.

Written Test

5. Match additional operating room furniture on the right with the correct descriptions.

- | | | |
|----------|---|----------------------------------|
| _____ a. | Used as receptacle for discarded soiled sponges | 1. Anesthesia cart |
| _____ b. | Holds sterile instruments; positioned across the sterile field as surgery begins | 2. Back table |
| _____ c. | Contains drapes, extra instruments, and sterile supplies; in some cases, may be utilized in place of a Mayo stand | 3. Case cart |
| _____ d. | Holds sterile basin with sterile water or saline | 4. Closed supply cabinets |
| _____ e. | Used by any member of the scrub team who requires additional height to be functional | 5. Foot stool, platform, or lift |
| _____ f. | Used as a receptacle for discarded items to be laundered | 6. I.V. poles |
| _____ g. | Used to hold package of intravenous fluids, blood replacement products, or intravenous medications to be administered during surgery; may also be used for irrigating solutions if continuous irrigation is desired | 7. Kick bucket |
| _____ h. | Used as a receptacle for discarded items to be thrown away | 8. Linen hamper |
| | | 9. Mayo stand |
| | | 10. Ring stand |
| | | 11. Sitting stool |
| | | 12. Trash container |

Written Test

6. Match operating room equipment on the right with the correct descriptions.

- | | | |
|----------|--|--|
| _____ a. | Used by surgeon to cauterize blood vessels and incise tissue by using high-frequency electrical current | 1. Anesthesia equipment and monitors |
| _____ b. | Used to continually trace cardiac activity of the patient | 2. Cardiac monitor |
| _____ c. | Generates an electrical impulse to the heart during arrest in an attempt to restart heart beat or to re-establish a regular rhythm | 3. Clocks and timers |
| _____ d. | Worn like eyeglasses to magnify the surgical field | 4. Communication devices |
| _____ e. | Used to remove blood, irrigating fluids, and secretions from the operative field | 5. Defibrillator |
| _____ f. | Used to provide lighting for the surgical team | 6. Electrosurgical unit |
| _____ g. | Used to operate pneumatic and electrical power equipment | 7. Gas outlets |
| _____ h. | Used so surgeon can view patient's x-rays during a procedure | 8. Lighting devices (general and spots) |
| _____ i. | Worn on surgeon's head to provide high intensity light on the operative area | 9. Pressurized (compressed) air and electrical outlets |
| _____ j. | Used to time various events in surgery such as tourniquet applications, cardiac arrests, births, and medication durations | 10. Suction outlet |
| _____ k. | Used for sending and receiving messages between rooms and departments | 11. Surgeon's headlight |
| | | 12. Surgeon's loupes |
| | | 13. X-ray illuminating light |

Written Test

7. Complete the following statements concerning the functioning of electrosurgical units by filling in the blanks with the correct answers.
- a. Electrosurgery is the use of high-frequency _____ for controlled cutting, coagulation, dehydration, or desiccation of tissue.
 - b. Heat is generated by passage of electrical current through _____ and _____ electrodes.
 - c. The active electrode may be hand-controlled or _____ controlled.
 - d. The inactive electrode on monopolar units is in the form of a _____.
 - e. _____ types of electrosurgical units are inherently safer because electric current does not pass through the patient's body.
 - f. The circuit for electricity is: power unit → active electrode → tissue of patient → _____ → power unit
 - g. If the electrical circuit is incomplete, current will seek an alternate path, such as _____.
8. Select true statements concerning placement of the grounding pad by placing a "T" next to the true statements and an "F" next to the false statements.
- _____ a. Place over area that is sufficiently fleshy to allow even dispersion of electricity through the pad.
 - _____ b. Place over bony prominences if possible.
 - _____ c. Avoid extremely hairy areas and areas which have excessive scar tissue.
 - _____ d. Place as close to operative wound as possible.

Written Test

9. Describe at least five safety standards for electrosurgical units (ESU).

- a. _____

- b. _____

- c. _____

- d. _____

- e. _____

585

*Permission to duplicate this test is granted.

**Operating Room Furniture and Equipment
Unit 1-C**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Position Grounding Pad and Connect
Electrosurgical Unit Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

586

*Permission to duplicate this form is granted.

Operating Room Furniture and Equipment Unit 1-C

Teacher Supplement 1—Connect Patient to Electrocardiograph Monitor (Optional Job Sheet)

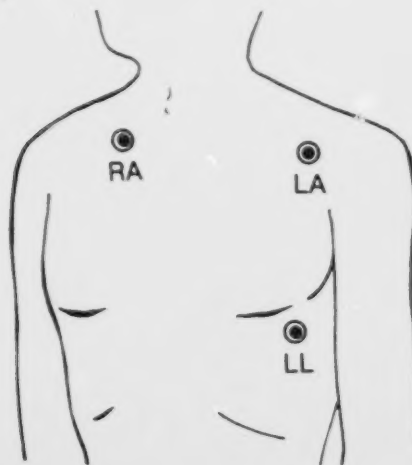
A. Equipment and supplies

1. Electrocardiograph monitor and paper
2. Electrodes
3. Electrode jelly

B. Procedure

1. Determine electrode placement sites on patient.

Figure 1



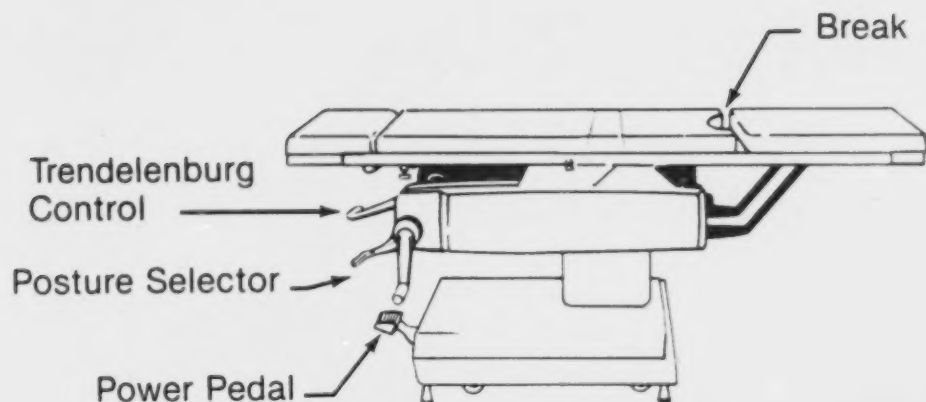
2. Cleanse and dry sites.
3. Prepare electrodes.
 - a. Non-disposable — Fill electrode area with electrode jelly.
 - b. Disposable — Attach cable to pregelled disposable electrodes.

Teacher Supplement 1

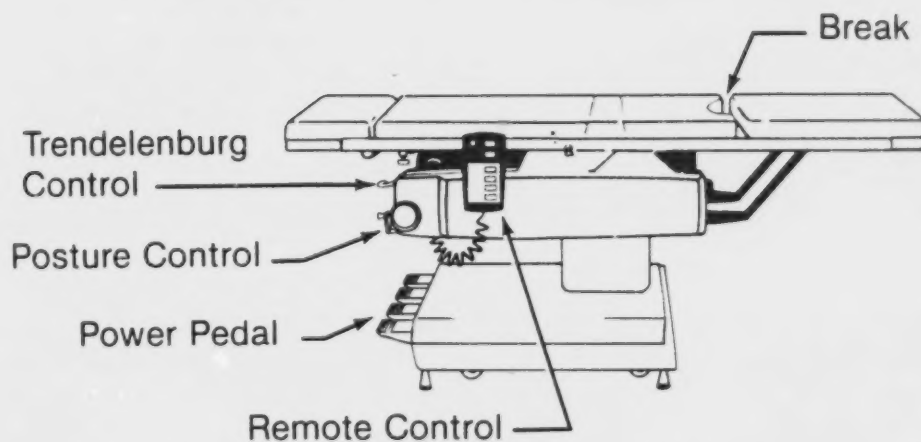
4. Place electrodes according to the following lead codes and Figure 1.
 - a. White — RA (+) right arm
 - b. Black — LA (-) left arm
 - c. Red — LL (ground) left leg
 - d. Green — LL (ground) left leg
5. Turn monitor on with sound.
6. Check paper in monitor.
7. Set controls on monitor according to doctor's orders.
8. Connect patient cable to monitor.

Note: Battery-powered models must be plugged into electrical outlets at the end of the day and set to recharge.

Surgical Tables

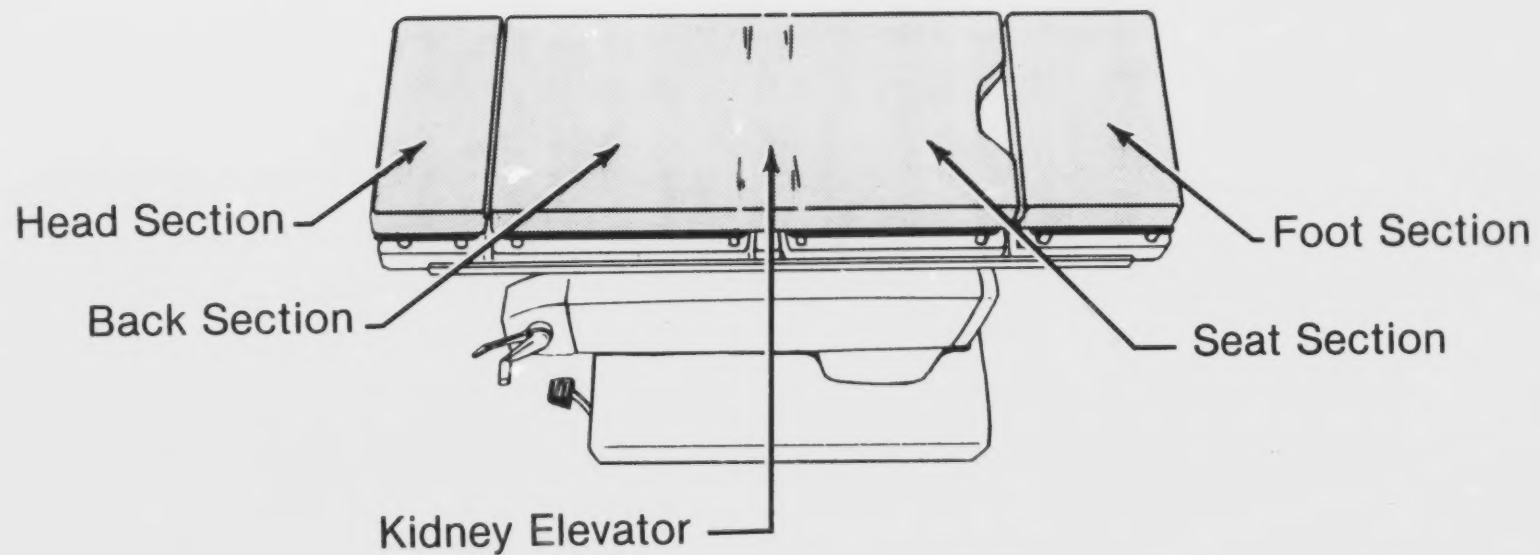


Manual Control Surgical Table



Remote Control Surgical Table

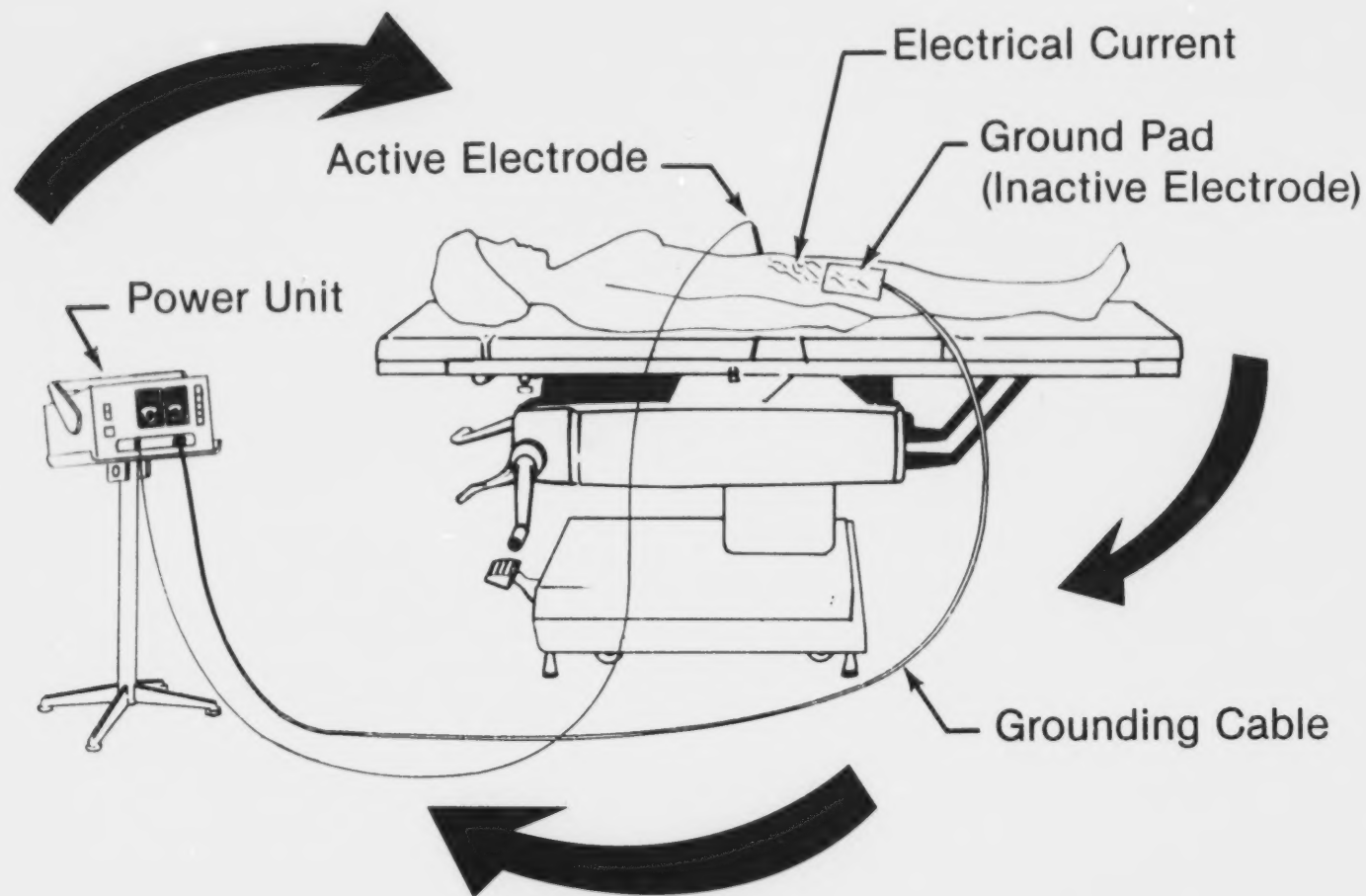
Sections of the Surgical Table



591

580

Electricity Circuit for Electrosurgery (Monopolar)



**Operating Room Furniture and Equipment
Unit 1-C**

Information Sheet

1. Terms and definitions

- a. **Bovie** — Spark-gap tube generator used before solid state cautery units became available
- b. **Cauterization** — Destroying tissue by burning using chemical, thermal, or electrical means
- c. **Coagulation** — Process of clotting
- d. **Dehydration** — Process of depriving or losing water, causes drying of tissues
- e. **Desiccation** — Process of drying; to cause tissue destruction by drying
- f. **Electrocautery** — Direct contact of an electrically heated wire with tissue

Note: Electrical current may be direct or alternating.

- g. **Electrosurgery** — Passage of high frequency, oscillating electric currents through tissue between two electrodes to coagulate or cut tissue
- h. **Fiberoptic** — Flexible material made of glass or plastic which transmits light along its course by reflecting it from the side or wall of the fiber; permits transmission of light and therefore, visual images around corners
- i. **Halogen** — Light given off by electrically stimulated, gas-producing group of elements in a glass bulb

Note: Halogen light is a whiter, brighter light than incandescent.

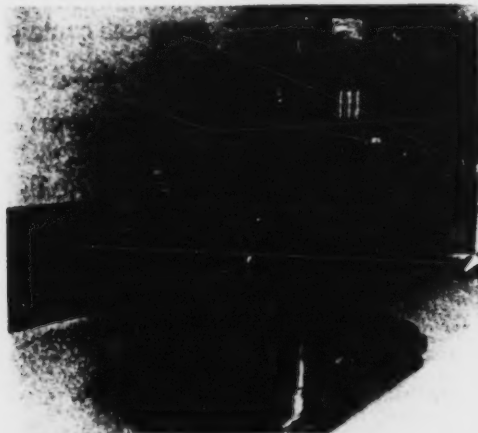
- j. **Incandescent** — Light given off by an electrically heated filament in a glass bulb

Information Sheet

2. Basic operating room furniture

a. Surgical table

Figure 1

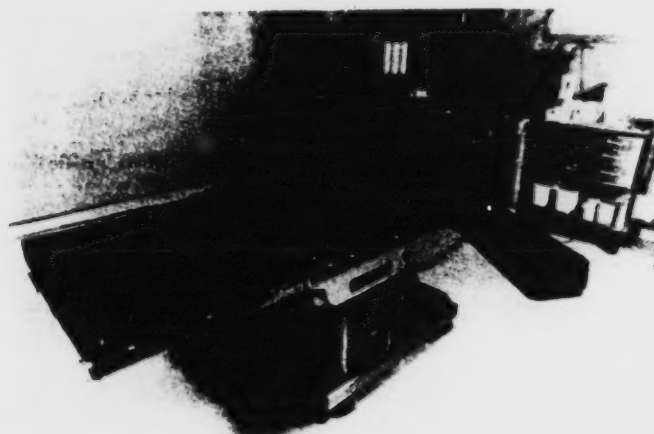


b. Surgical table attachments

Note: Not all attachments are available for all tables.

(1) Armboard

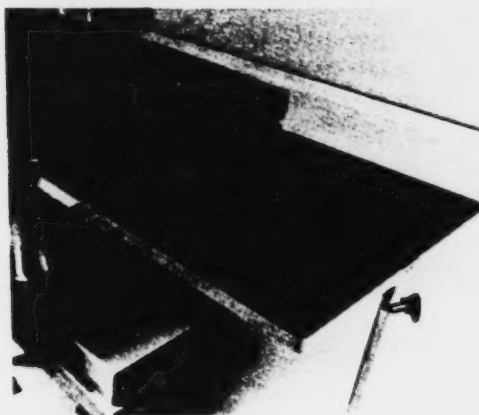
Figure 2



Information Sheet

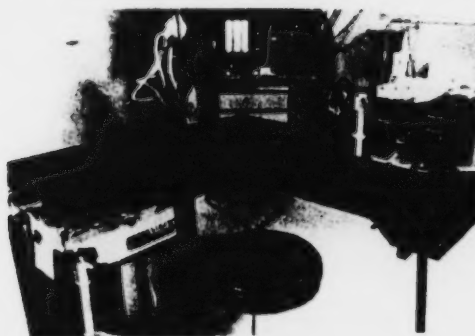
- (2) Table extension

Figure 3



- (3) Hand table

Figure 4



Information Sheet

- (5) Legholders (various styles shown)

Figure 5

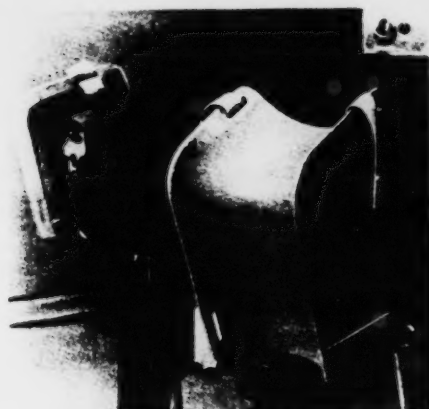


Figure 6



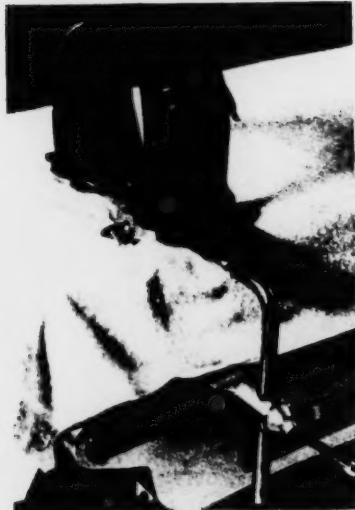
Figure 7



Information Sheet

- (5) Knee holder

Figure 8



- (6) Restraint (safety) strap

Figure 9



Information Sheet

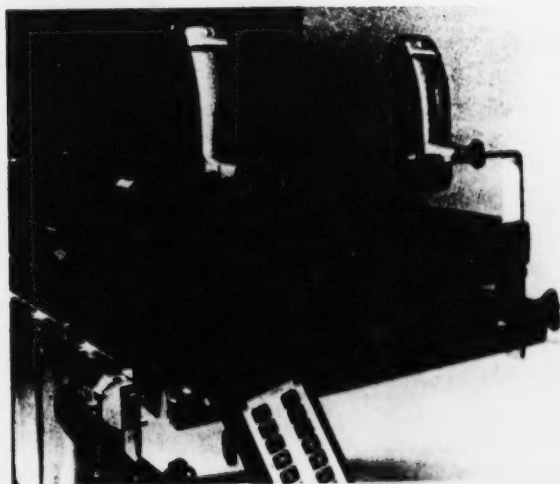
- (7) Lateral (kidney) brace

Figure 10



- (8) Shoulder braces

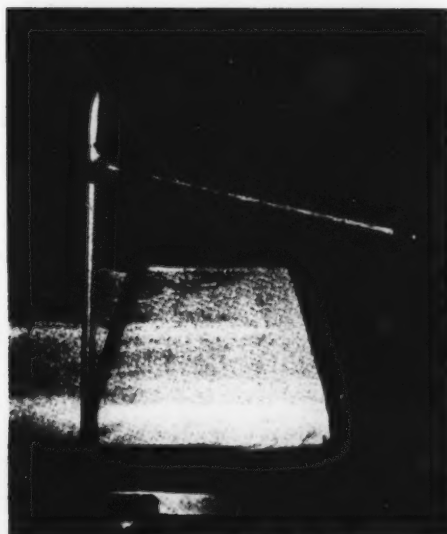
Figure 11



Information Sheet

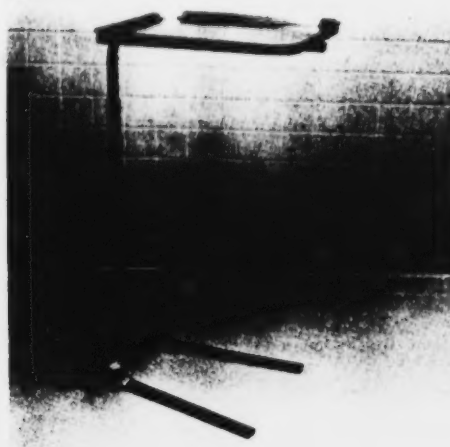
(9) Anesthesia screen

Figure 12



c. Mayo stand

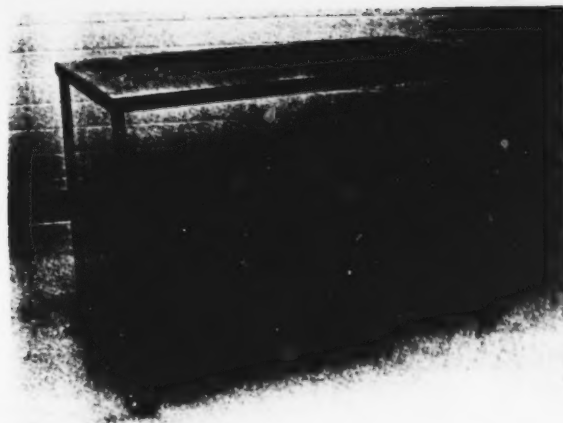
Figure 13



Information Sheet

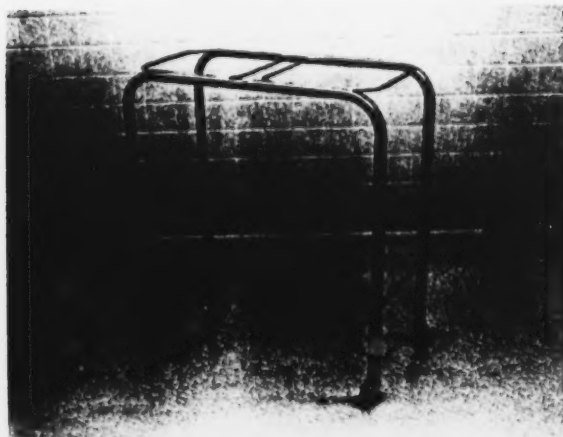
- d. Back table

Figure 14



- e. Ring stand (single and/or double)

Figure 15



Information Sheet

- f. Kick bucket

Figure 16



- g. Foot stool, platform, or lift

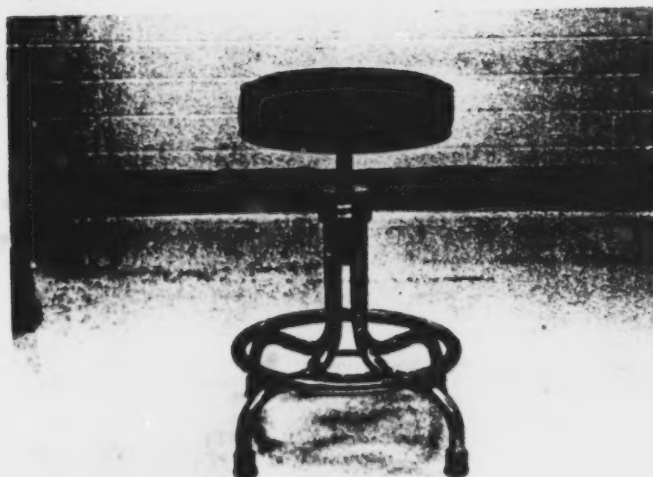
Figure 17



Information Sheet

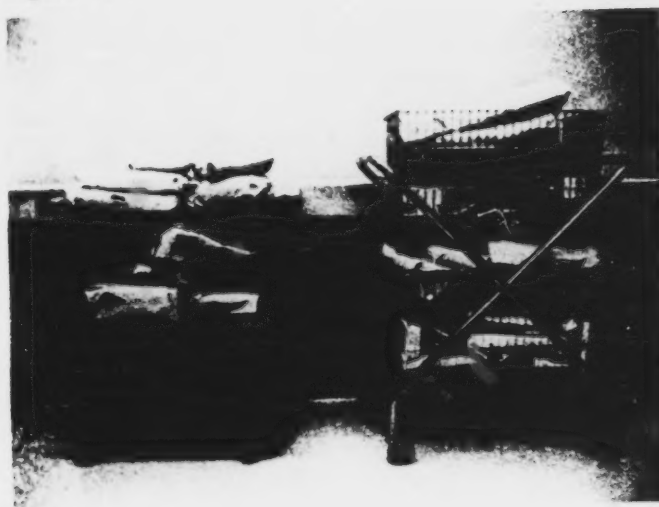
- h. Sitting stool

Figure 18



- i. Case carts (open or closed)

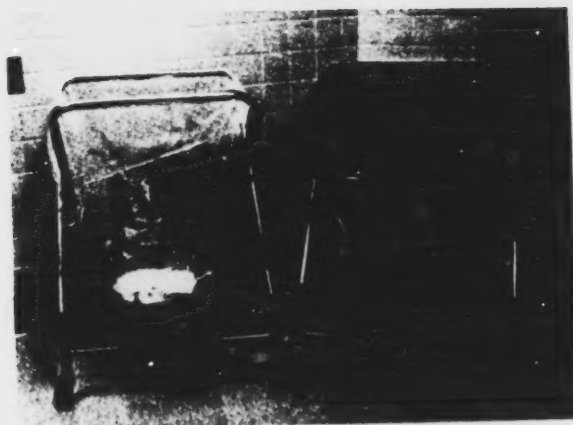
Figure 19



Information Sheet

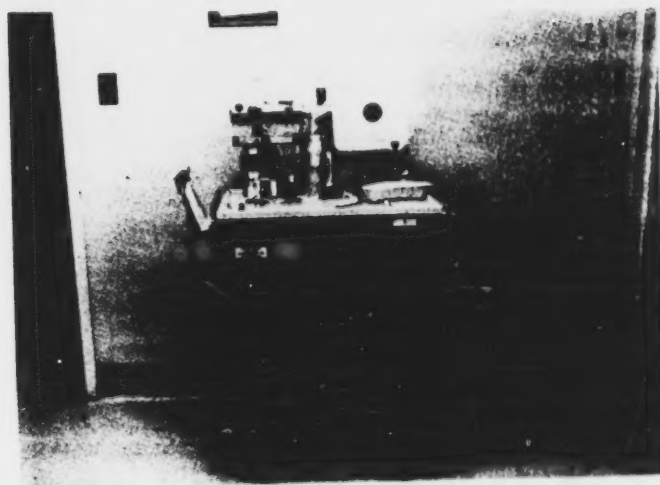
- j. Linen hamper
- k. Trash container

Figure 20



- l. Anesthesia cart

Figure 21



Information Sheet

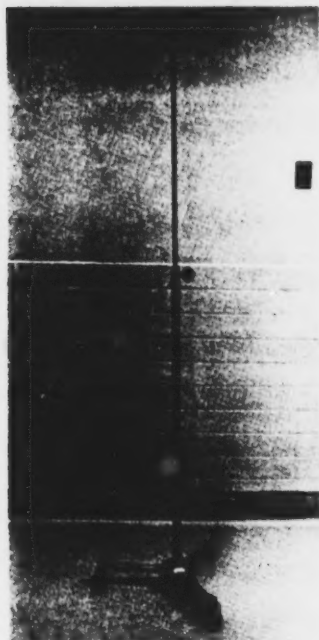
- m. Closed supply cabinets

Figure 22



- n. I.V. (intravenous) poles

Figure 23



Information Sheet

3. Basic operating room equipment

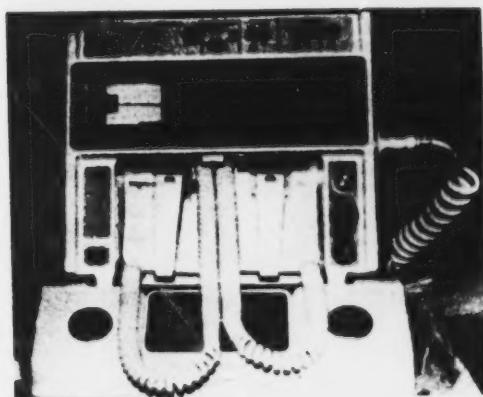
- a. Electrosurgical unit (ESU)

Figure 24



- b. Cardiac monitor and defibrillator

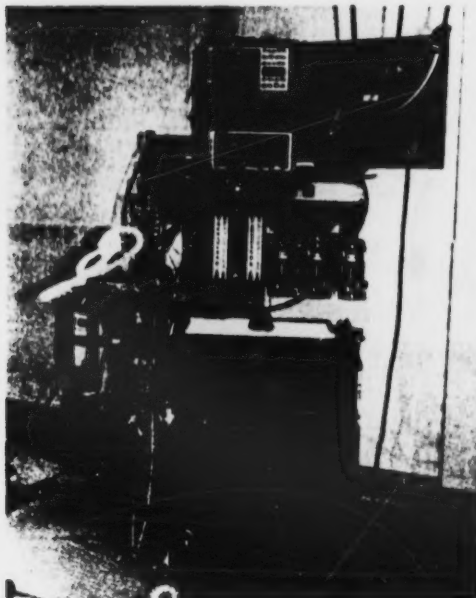
Figure 25



Information Sheet

- c. Anesthesia equipment and monitors

Figure 26



- d. Fiberoptic light source (for endoscopic equipment)

Figure 27



Information Sheet

- e. Wall and ceiling outlets for suction, gases, and power equipment

Figure 28

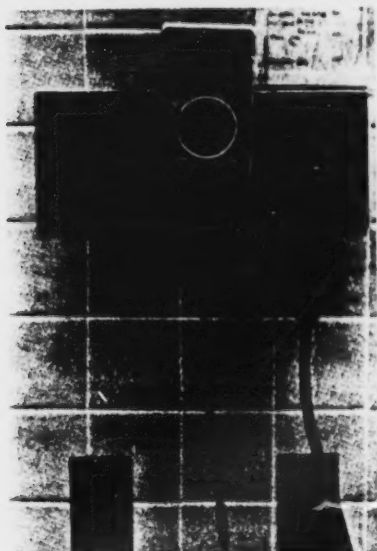
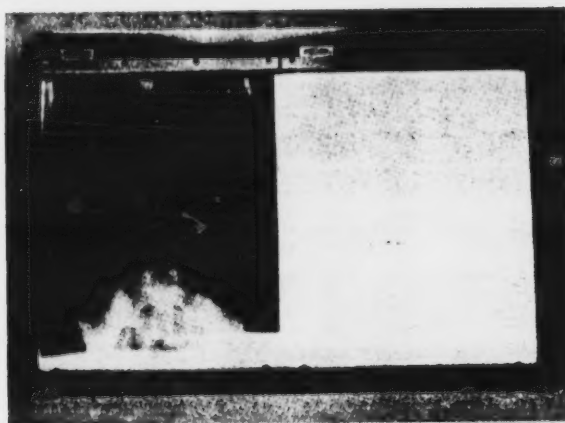


Figure 29



- f. X-ray illuminating light

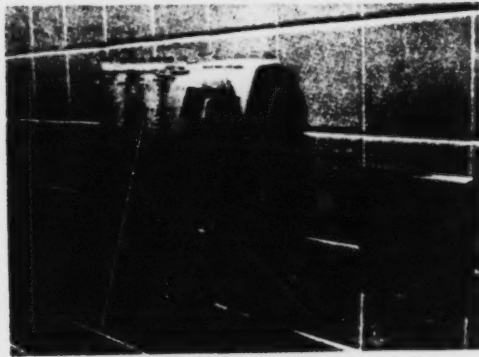
Figure 30



Information Sheet

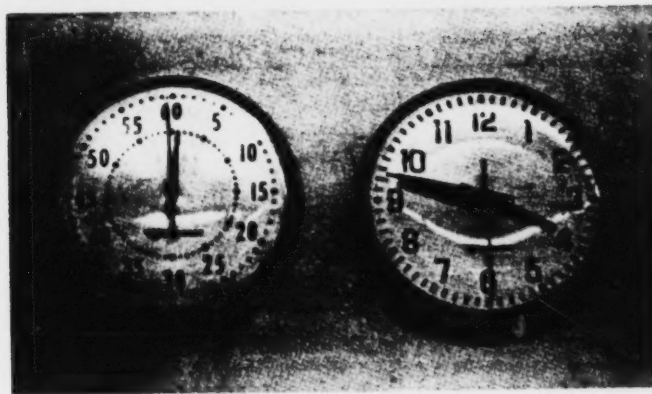
- g. Communication devices—Telephone, intercom, computer

Figure 31



- h. Clocks and timers

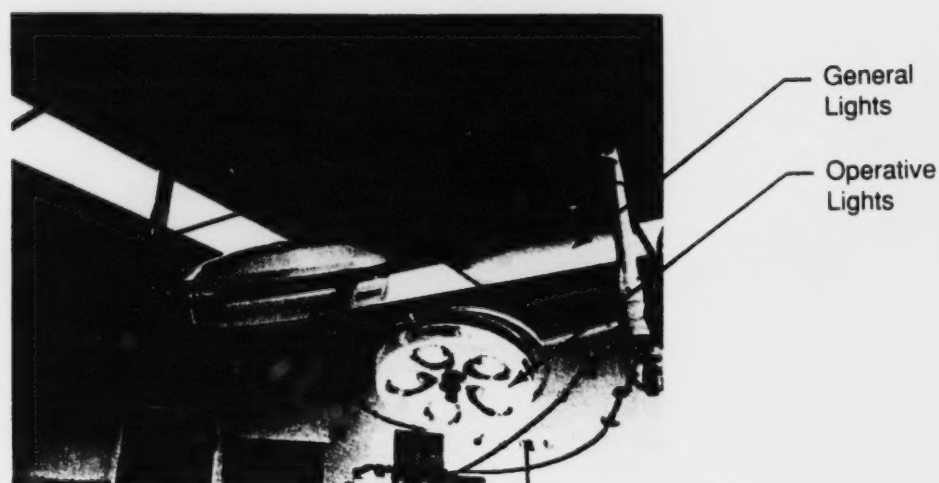
Figure 32



Information Sheet

- i. Lighting devices
 - (1) General illumination room ceiling lights
 - (2) Adjustable overhead operative lights (spot lights)

Figure 33



- j. Surgeon's loupes

Figure 34



Information Sheet

- k. Surgeon's headlight and light source

Figure 35



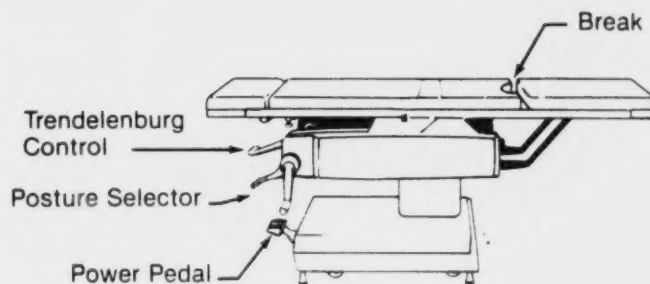
4. Uses of surgical table and attachments

- a. Surgical table

- (1) Table may be moved by manual control or remote control.

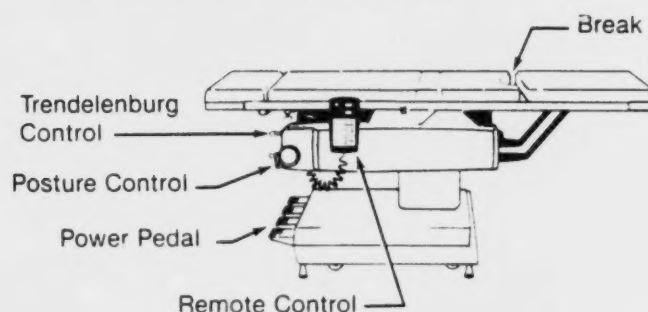
Note: Either method allows the same range of movement.

Figure 36—Manual control table



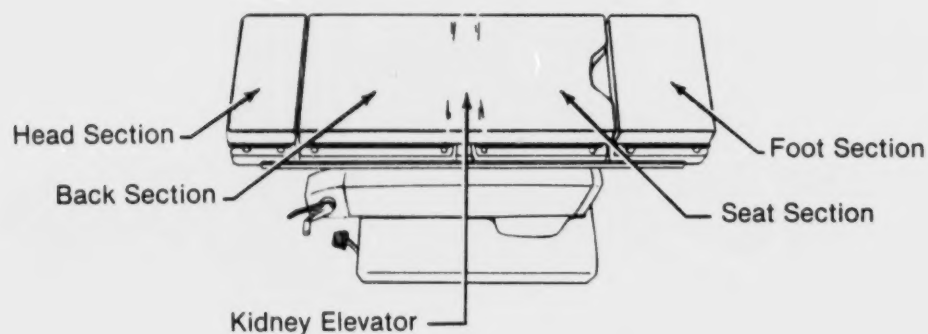
Information Sheet

Figure 37—Remote control table



- (2) Table has a metal top, divided into movable sections, which rests on a hydraulic base.

Figure 38—Sections of the surgical table



- (3) The metal table top is covered by a self-adhering, sectional, conductive rubber mattress.

Note: The mattress is at least 3" thick.

- (4) The sections can be flexed or the entire table can be raised, tilted, or lowered.
- (5) The joints between the sections are called "breaks."
- (6) Changing the angle between the sections is referred to as "breaking the table."

Information Sheet

- (7) On some table models, there is a space between the metal table surface and the mattress which allows for insertion of x-ray cassette without disturbing patient positioning.
 - (8) The posture selector governs four positioning mechanisms: flex, foot, side, back.
 - (a) Flex (and reflex) positioning mechanism allows back and hip sections to move downward (for flex) or upward (for reflex).
 - (b) Foot positioning mechanism may be lowered to any angle or fully retracted, but it cannot be raised above a natural position.
 - (c) Side positioning mechanism allows laterally tilting to left or right.
 - (d) Back positioning mechanism allows head and back section elevation or lowering to table limitations.
 - (9) Trendelenburg control provides tilting of the table to lower the head for Trendelenburg position or to raise the head for reverse Trendelenburg position.
- b. Surgical table attachments
- (1) Armboards — Used to support an arm not resting at the patient's side (such as when the arm is receiving intravenous infusions)

Note: Armboards are adjustable for patient comfort. A double armboard which supports both arms, one above the other, is commonly used for lateral positions.)
 - (2) Table extension — Used to extend length of table if needed; may be placed at head or foot end of table

Note: In vaginal cases, the extension may be adjusted to function as a work tray.
 - (3) Hand table — Used when performing surgery on the hand; surgeon commonly sits
 - (4) Legholders — Used to elevate and abduct legs for vaginal, rectal, and cystoscopic procedures
 - (5) Knee holder — Used when performing surgery on the knee to hold the knee securely

Information Sheet

- (6) Restraint (safety) strap — Used for patient security; is placed approximately mid-thigh level and should remain secure but not tight

Note: A bath blanket may be used as padding under the strap.

- (7) Lateral (kidney) brace — Used to stabilize the body in a lateral position
- (8) Shoulder braces — Used to prevent patient from sliding when placed in deep Trendelenburg position
- (9) Anesthesia screen — Used to separate sterile field from nonsterile anesthesia field; also used to keep drapes from covering the patient's face

Note: The anesthesia screen is placed after positioning and induction of the patient. I.V. poles with clamps to hold the drapes may be used instead of an anesthesia screen.

5. Uses of additional operating room furniture

a. Mayo stand

- (1) Draped in sterile manner by scrub
- (2) Holds the basic sterile instruments to be used
- (3) As surgery begins, the sterile draped Mayo is positioned across the sterile field.
- (4) The scrub team works from this stand.

b. Back table

- (1) Utilized by the scrub as part of the sterile field
- (2) Contains drapes, extra instruments, and sterile supplies
- (3) In some cases, may be utilized in place of a Mayo stand

c. Ring stand

- (1) Wrapped sterile basin is opened in ring stand which will create sterile field.
- (2) Basin holds sterile water or saline to be used during surgery.

d. Kick buckets — Used as receptacles for discarded soiled sponges

Information Sheet

- e. Foot stool, platform, or lift — Used by any member of the scrub team who requires additional height to be functional
- f. Sitting stool — Occasionally used by surgical team members, especially by anesthesia person or circulator
- g. Case cart — Used to hold supplies in advance of a specific case
- h. Linen hamper — Used as receptacle for discarded items to be laundered (such as drapes and towels)
- i. Trash container — Used as receptacle for discarded items to be thrown away (such as paper wrappers and masks)
- j. Anesthesia cart — Used by anesthesia person for medications, supplies, and patient documentation
- k. Closed supply cabinets — Used to contain extra supplies that may be needed during surgery
- l. I.V. poles — Used to hold packages of intravenous fluids, blood replacement products, or intravenous medications to be administered during surgery; may also be used for irrigating solutions if continuous irrigation is desired

6. Uses of operating room equipment

- a. Electrosurgical unit — Used by surgeon to cauterize blood vessels and incise tissue by using high-frequency electrical current
- b. Cardiac monitor and defibrillator — Used in cardiac arrest situations
 - (1) The monitor traces cardiac activity.
 - (2) The defibrillator generates an electrical impulse to the heart during arrest in an attempt to restart heart beat or to re-establish a regular rhythm.
- c. Anesthesia equipment and monitors — Used by the anesthesia person to administer anesthetic gases and to monitor the patient
- d. Fiberoptic light source — Used for endoscopic procedures
 - (1) Light intensity dial should be on lowest setting and unit should be off when connecting cable to light source. Then, turn unit on and increase light intensity to desired level.
 - (2) After using, decrease light intensity to lowest level and allow to cool off before turning off.

Information Sheet

- e. Wall and ceiling outlets (various uses)
 - (1) Suction outlet — Used to remove blood, irrigating fluids, and secretions from the operative field
 - (2) Gas outlets — Used to provide common anesthetic gases
 - (3) Pressurized (compressed) air and electrical outlets — Used to operate pneumatic (air) and electrical power equipment
 - f. X-ray illuminating light — Used so surgeon can view patient's x-rays during a procedure
 - g. Communication devices (telephone, intercom, computer, etc.) — Used for sending and receiving messages between rooms and departments
- Note: These devices decrease waiting time and also minimize the traffic into and out of the operating room.
- h. Clocks and timers — Used to time various events in surgery such as tourniquet applications, cardiac arrests, births, and medication durations
 - i. Lighting devices (general and spots) — Used to provide lighting for the surgical team
 - j. Surgeon's loupes — Worn like eyeglasses to magnify the surgical field
 - k. Surgeon's headlight — Worn on surgeon's head to provide high intensity light on the operative area

Note: Light may be from incandescent or halogen bulbs.

Information Sheet

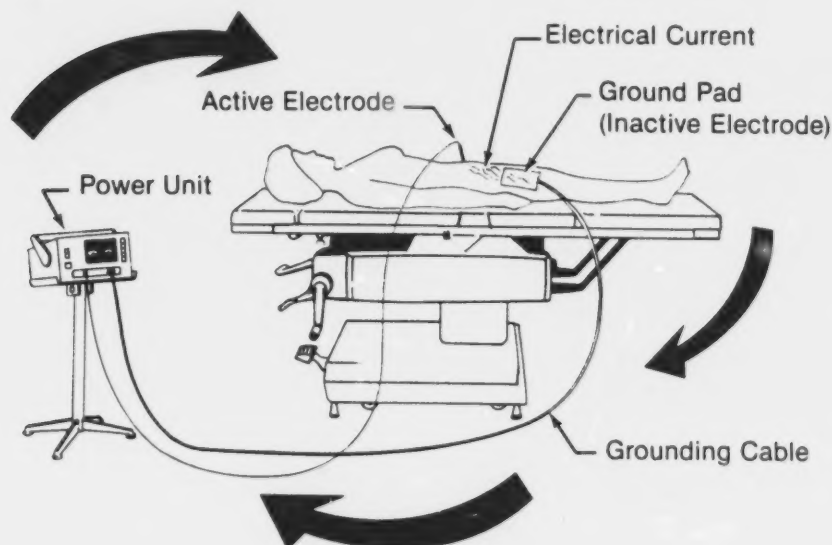
7. Functioning of electrosurgical units (ESU)

- a. Electrosurgery is the use of high-frequency electrical current for controlled cutting, coagulation, dehydration, or desiccation of tissue.
- b. Heat is generated by passage of electrical current through two electrodes: active and inactive.
 - (1) The active electrode on an electrosurgical unit
 - (a) Directs the flow of current to the operative site.
 - (b) May be incorporated into a tissue forceps or may be part of a pencil-shaped handle.
 - (c) May be hand-controlled or foot-controlled.
 - (d) Is attached to a conductor cord, which is connected to the electrosurgical unit.
 - (2) The inactive electrode on an electrosurgical unit
 - (a) Directs (disperses) the flow of current from the active electrode back to the electrosurgical unit
 - (b) May be incorporated into a tissue forceps on bipolar units or is in the form of a patient grounding pad on monopolar units.
- c. There are two types of electrosurgical units.
 - (1) Bipolar units — Inherently safer because the electric current only passes through the tips of the forceps and not through the patient's body.
 - (2) Monopolar units — Involve many potential hazards to the patient because the grounding pad must be properly placed and maintained to prevent serious electrical burns.
- d. Electrosurgical units produce different types of current.
 - (1) Coagulating current — Seals the ends of vessels to control bleeding
 - (2) Cutting current — Incises tissue

Information Sheet

- e. The circuit for electricity on an electrosurgical unit is as follows: power unit → active electrode (pencil or forcep) → tissue of patient → inactive electrode (grounding pad and cable or forcep) → power unit

Figure 39—Electricity circuit on monopolar ESU



- f. If the electrical circuit is incomplete, current will find an alternate path to ground such as:

- (1) Patient contact with metal table, conductive mattress, or conductive restraint strap attached to the metal table
- (2) Cardiac monitor leads
- (3) Pools of prep solutions under the patient

Note: Metal and water are good conductors of electricity. Therefore, proper positioning and prepping procedures must be carried out.

- g. All connections between the electrodes and the electrosurgical unit must be secure before use.
- h. Electrosurgical units should be used at the lowest setting of current that will accomplish the desired procedure (coagulating or cutting).

Note: If the surgeon asks for increasingly higher power settings, something is wrong with the unit.

Information Sheet

8. Placement of the grounding pad (inactive dispersive electrode on monopolar ESU)

- a. Place over area that is sufficiently fleshy to allow even dispersion of electricity through the pad.
- b. Never place over bony prominences (which concentrate current).
- c. Avoid extremely hairy areas and areas which have excessive scar tissue (which act as insulators).
- d. Place as close to operative wound as possible (to minimize current through the body).

Note: Do not forego fleshiness for wound proximity.

9. Safety standards for electrosurgical units (ESU)

- a. ESU should be designed to prevent unintentional activation.
- b. ESU cord should be long enough to reach electrical outlet without undue stress.
- c. Extension cords should not be used with an ESU.
- d. ESU should be mounted on a movable stand that will not tip over.
- e. Each ESU should have an identification number for documentation.
- f. ESU should not be used around flammable agents.
- g. ESU must be kept clean and protected from spills.
- h. ESU should be inspected for damage, frays, or flaws before use.
- i. ESU pencil is kept in a clean, dry, non-conductive safety holster which is impervious to fluids.
- j. Patient's skin should be inspected for burns before and after use of an ESU.
- k. If injury occurs, ESU and active and inactive (dispersive) electrodes should be removed from the OR and sent for a full investigation.

**Operating Room Furniture and Equipment
Unit 1-C**

Student Supplement 1—Checklist for Electrosurgery

Name _____ Date _____

A. Before surgery, confirm that:

- ☐ 1. Grounding pad site is as close as possible to operative site.
- ☐ 2. Selected site is free of lotions, oils, or excessive hair ... and that site is dry.
- ☐ 3. Selected site is free of skin folds, scar tissue, erythema, and lesions.
- ☐ 4. Selected site is away from areas likely to be contacted by spilled fluids.
- ☐ 5. Selected site is where circulation is not likely to be impaired.
- ☐ 6. Grounding pad is making good contact with the patient.
- ☐ 7. Grounding cable has firm connection to pad and is plugged into proper receptacle on power unit.
- ☐ 8. Positioned patient is not touching any metal on the surgical table.
- ☐ 9. Patient is not touching any device that may be an alternate return pathway for electrical current.
- ☐ 10. Prep solution has not pooled under the patient.

B. Intraoperatively, confirm that:

- ☐ 1. Unit is operating at lowest effective setting.
- ☐ 2. If repositioning of patient is necessary, grounding pad is checked before proceeding.
- ☐ 3. If increasingly higher than normal power settings are requested, a faulty condition is suspected and looked for.
- ☐ 4. The active electrode is kept in its holster when not in use.

Student Supplement 1

C. Post-operatively, confirm that:

- ☐ 1. Power is in off position.
- ☐ 2. Grounding pad is removed.
- ☐ 3. Site is checked for signs of skin damage.

Operating Room Furniture and Equipment Unit 1-C

Job Sheet 1—Position Grounding Pad and Connect Electrosurgical Unit

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Connections are secure	_____
Grounding pad is correctly positioned	_____
Minimum settings are used	_____
ESU operates as designed	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your equipment ready.

A. Equipment and materials

Electrosurgical power unit
Pregelled grounding pad and cable
Electrosurgical pencil or bipolar forcep

B. Procedure

1. If hand-control pencil is used,

- ☐ a. Visually inspect all cords and plugs. Report any damage to supervisor, and do not use.
- ☐ b. Check to make sure power switch on unit is in "off" position.
- ☐ c. Connect power unit cord to grounded three-prong wall outlet.
- ☐ d. Position grounding pad — Open package, remove paper from pregelled pad, and apply adhesive side of pad to selected site.
- ☐ e. Connect grounding pad to power unit in receptacle marked "patient."

Job Sheet 1

- ☐ f. Plug distal end of electrode to power unit in receptacle marked "hand switch."
- ☐ g. Turn coagulating and cutting levels to minimum settings.
- ☐ h. Turn power switch on.
- 2. If foot switch is used,
 - ☐ a. Visually inspect all cords and plugs. Report any damage to supervisor, and do not use.
 - ☐ b. Check power switch on unit to make sure it is "off."
 - ☐ c. Connect plug of foot switch to active receptacle of unit if necessary.
 - ☐ d. Connect grounding pad to power unit.
 - ☐ e. Connect active electrode.
 - ☐ f. Place foot switch on floor for convenient use by surgeon.
 - ☐ g. Turn cutting and coagulating levels to minimum settings.
 - ☐ h. Turn power switch on.

Evaluator's comments: _____

Instrumentation Unit 2-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to identify the parts of a surgical instrument, classify basic surgical instruments, discuss their care and handling, and pass and assemble various instruments. The student should demonstrate these competencies by completing the assignment and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to instrumentation with their correct definitions.
2. Identify the parts of a surgical instrument.
3. Select true statements concerning classifications of surgical instruments.
4. Identify basic cutting/dissecting instruments.
5. Identify basic clamping/occluding instruments.
6. Identify basic grasping/holding instruments.
7. Identify basic retracting/exposing instruments.
8. Identify basic viewing instruments.
9. Identify basic suturing/stapling instruments.
10. Identify basic suctioning/aspirating instruments.
11. Identify basic dilating/probing instruments.
12. Complete statements concerning the handling and care of surgical instruments.
13. Match the parts of an endoscope with their correct descriptions.
14. Complete statements concerning the handling and care of endoscopes.
15. Identify basic surgical instruments. (Assignment Sheet 1)

Objective Sheet

16. Classify basic surgical instruments according to their functions. (Assignment Sheet 2)
17. Load and unload a scalpel blade on a scalpel handle. (Job Sheet 1)
18. Pass various instruments to another person. (Job Sheet 2)
19. Assemble a Balfour abdominal retractor. (Job Sheet 3)

Instrumentation Unit 2-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Parts of a Surgical Instrument (Objective 2)
TM 2—Classifications of Surgical Instruments (Objective 3)
TM 3—Classifications of Surgical Instruments (Continued) (Objective 3)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the assignment sheets. Review criteria for evaluation of these activities.
12. Discuss the student supplement. This could be used as a homework assignment, practice exercise, or quiz. Explain to students how you plan to evaluate the supplement, if at all.

Suggested Activities

13. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

14. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
15. Make copies of the written test. Add or modify test items as needed.
16. Give written test.
17. Compile assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
18. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce the unit, display the basic surgical instruments that are included in this unit. Let students pick up the instruments so they can get the "feel" of the different instruments. This is especially important for tactile learners. You may wish to tape the name to the instrument or have the appropriate name on a card next to the instrument so students will begin to associate the name with the instrument.
2. After you make the instrument display above, you can use it to drill and then test the students' abilities to identify and classify the various instruments.
 - a. If you used name cards for the display, you could mix them up or collect all and have each student put the cards where they belong.
 - b. If you labeled the actual instruments, you could hold up each instrument and have students identify it either by writing the name on paper for individual quiz grades or by saying out loud for team points.

Suggested Activities

3. Have students make flash cards with a picture of the instrument on one side and the proper name and classification on the other. Students may also want to include the instrument's common name. The pictures of instruments may be copies from this book, actual photos taken by you or the student, or cutouts from old instrument catalogs. Divide students into groups to work on their identification skills. This activity can also reinforce **group effectiveness skills**. Save the flash cards for future classes to use and update as needed.
4. Show copies of instrument catalogs so students will understand how many specialized instruments there are. Remind them that this unit only covers the basic instruments.
5. Obtain current price lists for corresponding instrument catalogs, and have students look up the prices for various instruments you select. Have them find the cheapest instruments and the most expensive instruments. Ask the following questions:
 - What types of instruments are very expensive? Why?
 - What is the approximate total cost for a basic laparotomy set?
 - How much money does a local medical facility have invested in instruments?
 - How often are instruments typically replaced? Why?
 - Why do some surgeons own their own instruments?

Understanding cost can help students appreciate the value of instruments and the need for proper care and handling to extend the life of instruments. This can reinforce **communication skills, adaptability skills, and organizational effectiveness skills**.

6. Review policies and procedures of local medical facilities regarding the care and handling of surgical instruments. Provide examples of policy and procedure manuals from several hospitals.
 - a. Discuss any policies or procedures for the care of surgical instruments that may vary from the guidelines outlined in this unit.
 - b. Explore with the students any guidelines from an institution that may be outdated. Ask them how they would provide for proper care and handling of the surgical instruments if they were working there. These discussions can reinforce **creative thinking skills, critical thinking skills, and communication skills**.
7. Show videos dealing with surgical instruments. Refer to the "Suggested Supplemental Resources" for more information.

Suggested Activities

8. Plan a field trip to a local hospital's Central Supply Unit or Instrument Room. Have the students observe how the instruments are cleaned, wrapped, sterilized, and stored.
 - a. You may want to videotape the visit for use in later classes or for students who may have missed the trip.
 - b. After returning to the classroom, ask students about the tour or have them summarize the main points of the tour in writing. This can reinforce **group effectiveness skills, communication skills, and foundation writing skills.**
9. Invite sales representatives from companies that make endoscopes and/or stapling equipment to visit with your class. Have the representatives demonstrate the proper handling and care of the equipment, show new products, and discuss the specific types of equipment (endoscopes or staplers) most commonly used in each surgical specialty. Demonstrations and discussions can reinforce **communication skills.**
10. Obtain examples of instruments requiring assembly such as Bookwalter or O'Connor-O'Sullivan retractors and have students practice assembling and disassembling the instruments.
11. Additional suggestion for Job Sheet 2—Have students work in pairs or groups passing the various instruments to another person. Ask them to pass the instruments both standing side-by-side and opposite each other.

Resources Used in Developing This Unit

1. American V. Mueller. *General Instrumentation Atlas, Volume 1*. Chicago: American Hospital Supply Corporation.
2. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nursing, 1992.
3. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
4. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.
5. Tighe, Shirley M. Brooks. *Instrumentation for the Operating Room*, 3rd ed. St. Louis: C.V. Mosby, 1989.
6. *Wound Closure Manual*. Somerville, NJ: Ethicon, Inc., 1988.

Suggested Activities

Suggested Supplemental Resources

1. Books/Articles

- a. Auto Suture. *Stapling Techniques, General Surgery*, 3rd ed. Norwalk, CT: United States Surgical Corporation, 1988.
- b. Fuller, Joanna R. *Surgical Technology Principles and Practice*, 2nd ed. Philadelphia: W.B. Saunders Company, 1986.
- c. Hardy, J.D., et.al. *Hardy's Textbook of Surgery*. Philadelphia: C.V. Mosby Co., 1988.
- d. Kirk, R.M. *Basic Surgical Techniques*, 3rd ed. New York: Churchill Livingston, 1989.
- e. Wells, Maryann Papanier and Mary Bradley. *Surgical Instruments: A Pocket Guide*. Philadelphia: W.B. Saunders Co., 1993.

2. Videotapes

- a. *Use of Surgical Instruments*, DG 1000, 19 min. 1967.
- b. *Inhospital Sterilization*, DG 1368, 21 min. 1981.
- c. *Surgical Instruments: Care and Handling*, DG 1487, 28 min. 1984.
- d. *Powered Surgical Instruments: The Perioperative Challenge*, DG 1641, 15 min., 1989.
- e. *The Nurse's View of Endoscopy*, DG 1603, 19 min. 1988.

a-e are available from:

Cine-Med Distribution Center
Davis + Geck Video Library
P.O. Box 745
Woodbury, CT 06898
800-633-0004

Suggested Activities

- f. *Basic O.R. Instrumentation*. 28 minutes. Classifies surgical instruments into four categories. Demonstrates each category and their functions, methods of cleaning, preventive maintenance, instrument counts, and techniques to prevent bloodborne diseases. Available from:

American Journal of Nursing Company
Educational Services Division
555 West 57th Street
New York, NY 10019-2961
800-CALLAJN (800-225-5256)

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

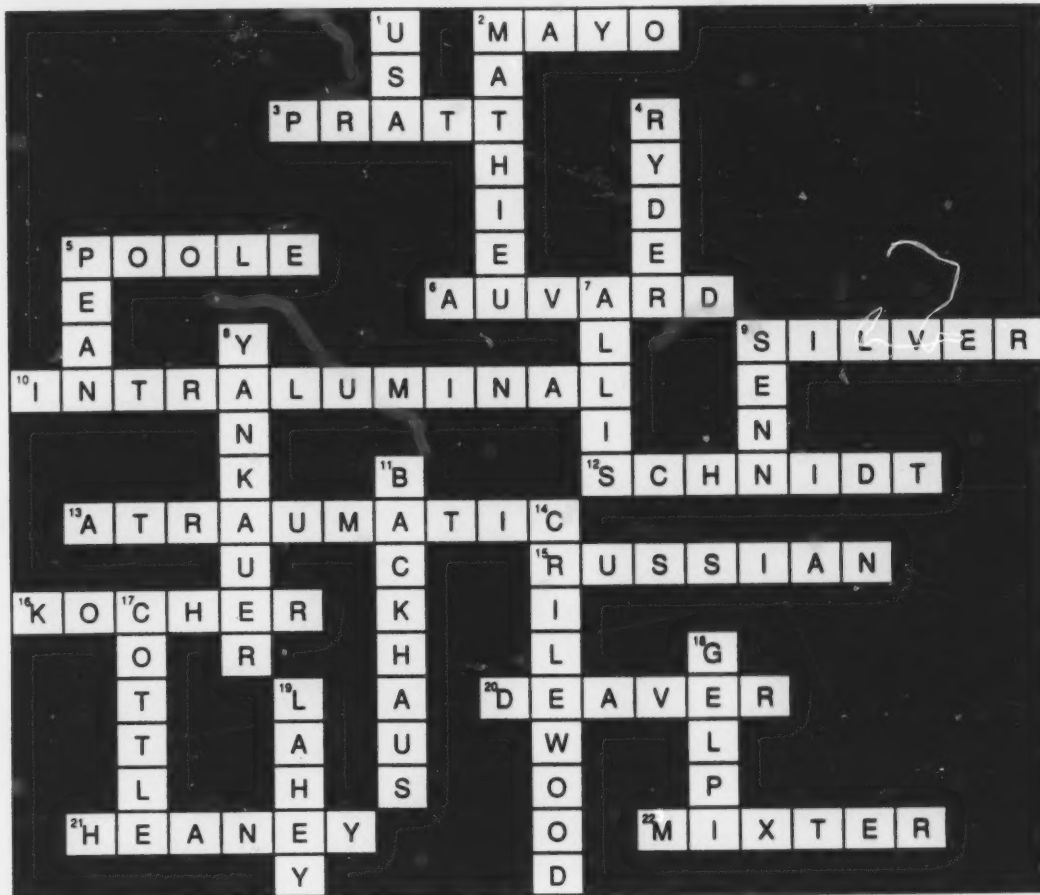
Option B

- Yes—Can perform job with no additional training.
- No—Is unable to perform job satisfactorily.

Instrumentation
Unit 2-C

Answers to Student Supplement

Student Supplement 1



**Instrumentation
Unit 2-C**

Answers to Assignment Sheets

Assignment Sheet 1

1. Weitlaner retractor
2. Stapler
3. Allis intestinal forceps
4. Balfour abdominal retractor
5. Pratt uterine dilators
6. DeBakey tissue forceps
7. Cottle nasal specula
8. Metzenbaum dissecting scissors
9. Gelpi retractor
10. Foerster sponge forceps
11. Clip applier
12. Volkmann retractor
13. Pean hemostatic forceps
14. Iris scissors
15. Rankin hemostatic forceps
16. Heaney needle holder
17. Mayo dissecting scissors
18. Auvard weighted vaginal specula
19. Endoscope
20. Adson tissue forceps
21. Babcock intestinal forceps
22. Atraumatic towel clamp
23. Poole abdominal suction tube
24. U.S.A. retractor
25. Frazier suction tube
26. Mayo-Hager needle holder
27. Bakes common duct dilator
28. Backhaus towel clamp
29. Crile hemostatic forceps
30. Deaver retractor
31. Lahey gall duct forceps
32. DeBakey needle holder
33. Tissue forceps with teeth
34. Ochsner gall bladder trocar

Answers to Assignment Sheets

Assignment Sheet 2

1. CUT	11. R	21. G	31. SUC
2. G	12. SUT	22. R	32. CUT
3. D	13. SUC	23. CL	33. R
4. CL	14. R	24. R	34. R
5. V	15. CL	25. G	35. G
6. SUT	16. R	26. R	36. G
7. R	17. D	27. G	37. R
8. SUT	18. CUT	28. SUT	38. CL
9. CL	19. CUT	29. D	39. G
10. G	20. CL	30. V	40. CUT

Instrumentation Unit 2-C

Answers to Written Test

1.

a.	3
b.	2
c.	8
d.	16
e.	18

f.	14
g.	10
h.	12
i.	9
j.	6

k.	11
l.	5
m.	1
n.	15

2.
 - a. Jaws
 - b. Blades
 - c. Joint (box lock or screw shown)
 - d. Shanks
 - e. Ratchets
 - f. Finger rings

3.

a.	F
b.	T
c.	F
d.	T
e.	F

f.	T
g.	T
h.	T
i.	T
j.	T

k.	F
l.	F
m.	T
n.	T
o.	F

4.
 - a. Mayo scissors
 - b. Wire cutters
 - c. Metzenbaum scissors
 - d. Iris scissors
 - e. Scalpel handle (#3)
 - f. Scalpel blade (#20)

5.
 - a. Halsted mosquito forceps
 - b. Crile hemostatic forceps
 - c. Pean hemostatic forceps
 - d. Mixter gall duct forceps
 - e. Schmidt tonsil forceps
 - f. Lahey gall duct forceps

6.
 - a. Plain tissue forceps (without teeth)
 - b. Adson tissue forceps (with serrations)
 - c. Tissue forceps with teeth
 - d. Potts-Smith tissue forceps
 - e. Cushing bayonet tissue forceps
 - f. Russian tissue forceps
 - g. Backhaus towel clamp
 - h. Babcock intestinal forceps
 - i. Allis intestinal forceps
 - j. Foerster sponge forceps

Answers to Written Test

7.
 - a. Deaver retractors
 - b. Gelpi retractor
 - c. Balfour abdominal retractor
 - d. Harrington retractor
 - e. Ribbon retractor
 - f. Senn retractor
 - g. Volkmann retractor
8.
 - a. Pratt rectal speculum
 - b. Boucheron ear specula
 - c. Auvard weighted vaginal speculum
 - d. Graves vaginal speculum
9.
 - a. Heaney needle holder
 - b. Crile-Wood needle holder
 - c. Castroviejo needle holder
 - d. Stapler
10.
 - a. Frazier suction tube
 - b. Ochsner gall bladder trocar
 - c. Yankauer suction tube
 - d. Poole abdominal suction tube
11.
 - a. Pratt uterine dilator
 - b. Van Buren urethral sound
 - c. Bakes common duct dilator
 - d. Silver probes
12.

a.	4	d.	3	g.	2	j.	3
b.	3	e.	4	h.	2		
c.	1	f.	1	i.	4		
13.
 - a. 3
 - b. 4
 - c. 1
 - d. 2
14.
 - a. Dry
 - b. Toothpick
 - c. Pipestem
 - d. Mechanically
 - e. Delicate
 - f. Warm
 - g. Alcohol

636

**Instrumentation
Unit 2-C**

Written Test

Name _____

Score _____

1. Match terms on the right with the correct definitions.

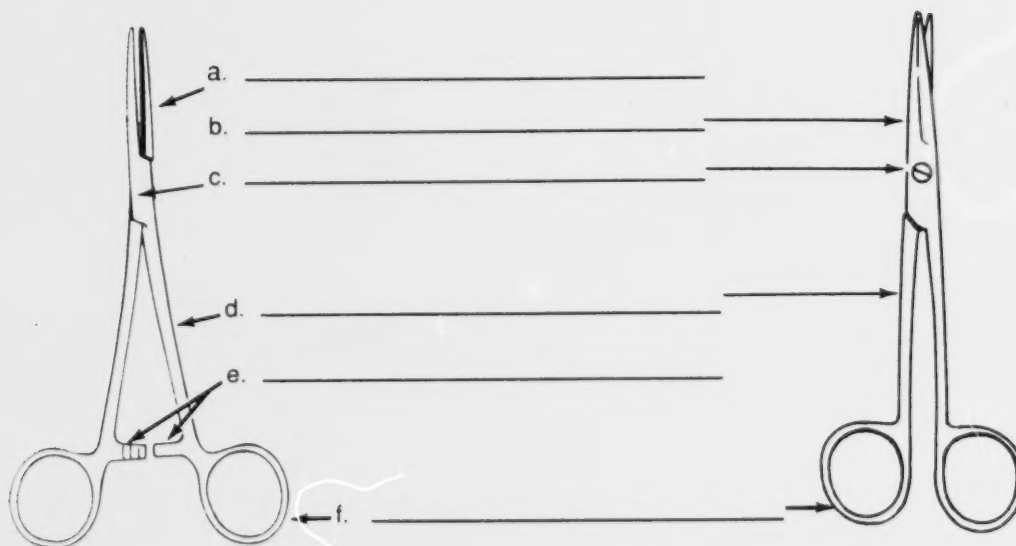
- _____ a. Instrument which presses two or more parts together to constrict or hold firmly
- _____ b. Hinge joint of an instrument
- _____ c. Two-bladed instrument used as a pincher to hold, grasp, or extract an object
- _____ d. Grooves on the jaws of surgical instruments which allow for firm holding of tissue
- _____ e. Prongs at the tips of surgical instruments which allow firm grasping of tissues
- _____ f. Instrument used to hold open the edges of a wound or to hold tissue or organs away from the area where the surgeon is working
- _____ g. Capable of being bent or shaped as needed
- _____ h. Instrument for exploring the depth and direction of a wound or sinus
- _____ i. Strand of suture material used for tying a blood vessel or other structure to constrict or bind it
- _____ j. Instrument equipped with a lighting system for visualization within a body cavity or organ
- _____ k. To close up, obstruct, or join together

- 1. Atraumatic
- 2. Box lock
- 3. Clamp
- 4. Director
- 5. Dissect
- 6. Endoscope
- 7. Endoscopy
- 8. Forceps
- 9. Ligature
- 10. Malleable
- 11. Occlude
- 12. Probe
- 13. Ratchets
- 14. Retractor
- 15. Self-retaining
- 16. Serrations
- 17. Suction
- 18. Teeth

Written Test

- _____ l. To separate tissues or parts
- _____ m. Not having a biting or crushing effect on tissue
- _____ n. Capable of being placed in a fixed position

2. Identify the parts of the surgical instruments below.



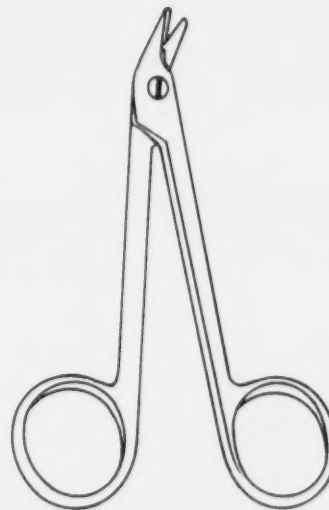
3. Select true statements concerning classifications of surgical instruments by placing a "T" or "F" next to the true or false statements.
- _____ a. Clamps are used for tissue retraction or suturing.
 - _____ b. Sharps have sharp or cutting edges.
 - T c. Retracting/exposing instruments include scalpels and scissors.
 - _____ d. Clamps are generally used for hemostasis.
 - _____ e. Grasping instruments are used for exposure of the operative field.

Written Test

- _____ f. Retracting instruments are used for exposure of the operative field.
 - _____ g. Retracting instruments include hand-held and self-retaining retractors.
 - _____ h. Clamps are constructed of two halves which are held together at a joint.
 - _____ i. Towel clamps are used to hold surgical drapes.
 - _____ j. Cutting instruments are used to incise, separate, or excise tissue.
 - _____ k. Stapling instruments have sharp cutting edges.
 - _____ l. Viewing instruments may be smooth, right-angled, rake, hook, or curved.
 - _____ m. Needle holders resemble hemostatic forceps except for the jaws.
 - _____ n. A probe is used to explore a structure or to locate an obstruction.
 - _____ o. Suctioning devices may be of spring action and lock-type.
4. Identify the following basic cutting/dissecting instruments (sharps).



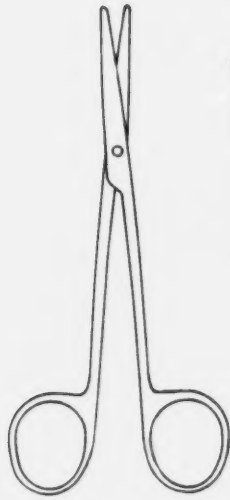
a. _____



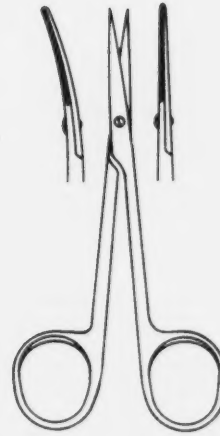
b. _____

633

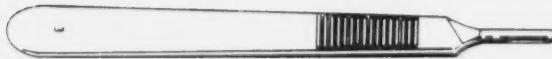
Written Test



c. _____



d. _____

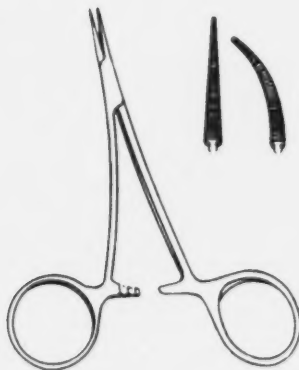


e. _____

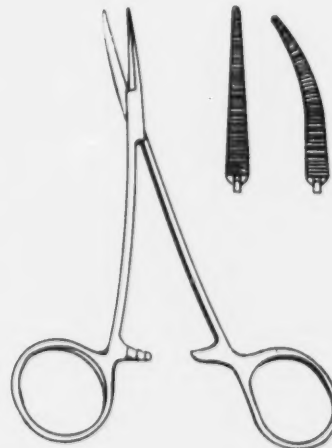


f. _____

5. Identify the following basic clamping/occluding instruments.



a. _____



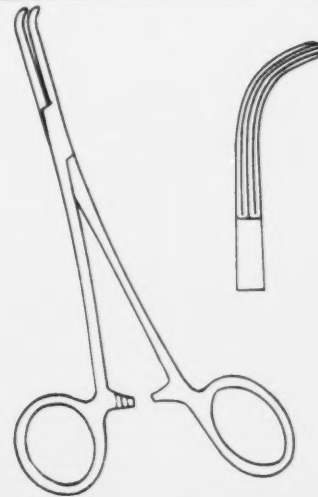
b. _____

Written Test



c.

d.

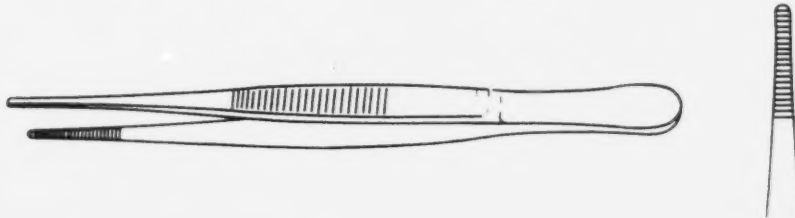


e.

f.

Written Test

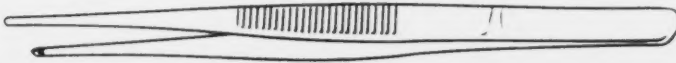
6. Identify the following basic grasping/holding instruments.



a. _____



b. _____



c. _____



d. _____

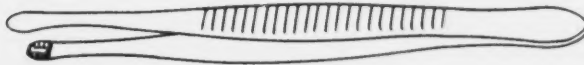


642

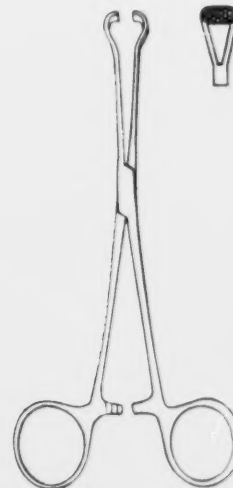
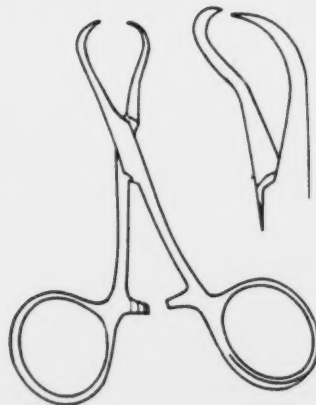
Written Test



e. _____



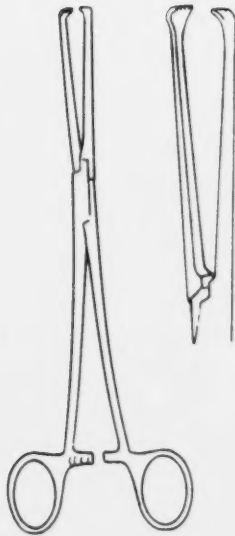
f. _____



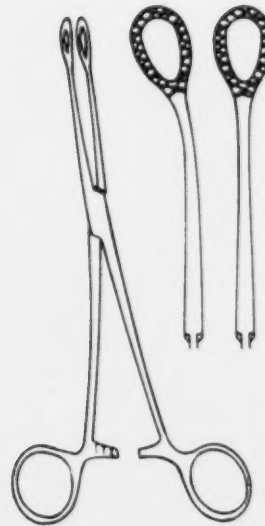
g. _____

h. _____

Written Test

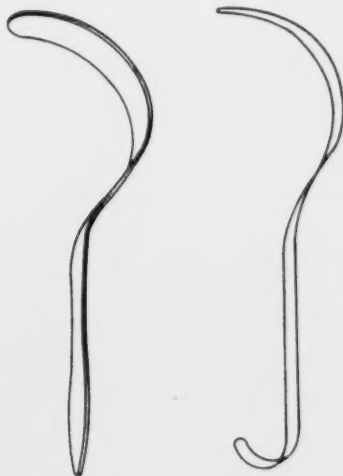


i. _____

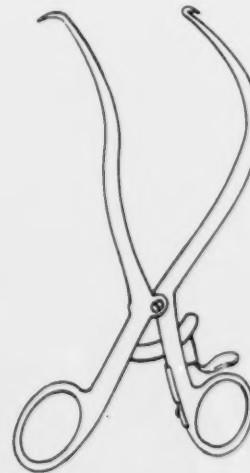


j. _____

7. Identify the following basic retracting/exposing instruments.

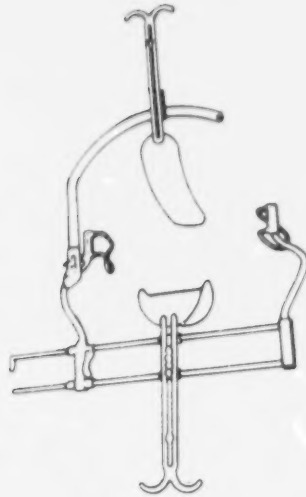


a. _____



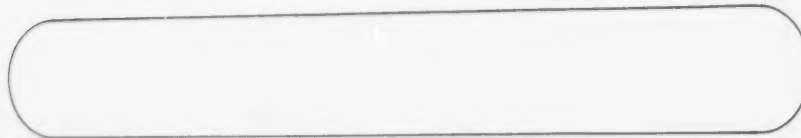
b. _____

Written Test



c. _____

d. _____

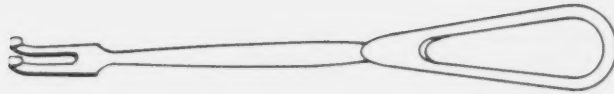


e. _____



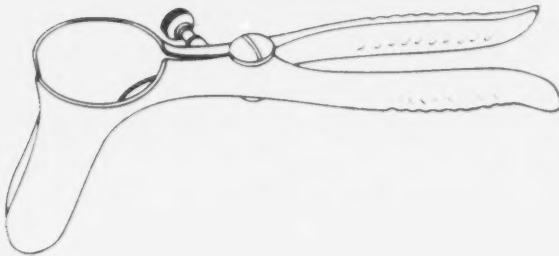
f. _____

Written Test

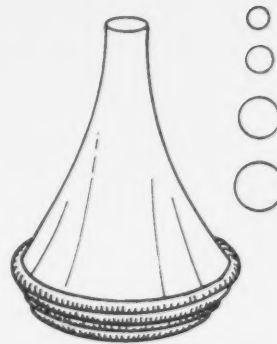


g. _____

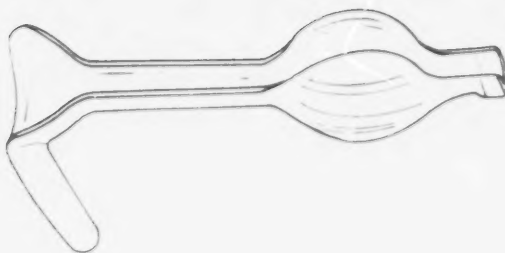
8. Identify the following basic viewing instruments.



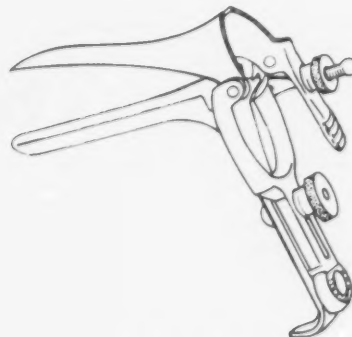
a. _____



b. _____



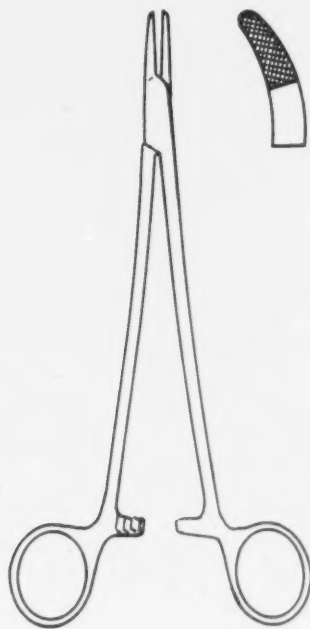
c. _____



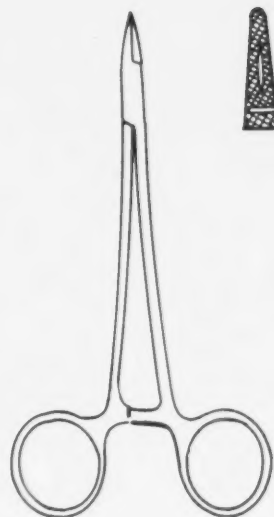
d. _____

Written Test

9. Identify the following basic suturing/stapling instruments.

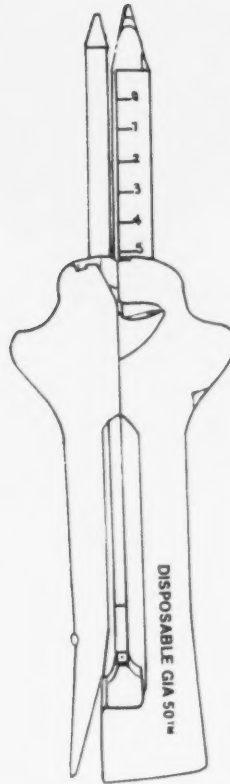
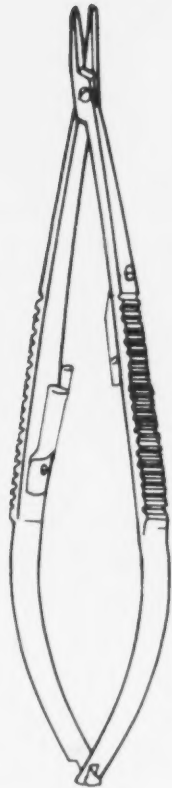


a. _____



b. _____

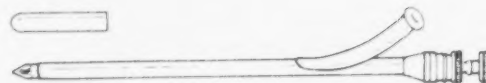
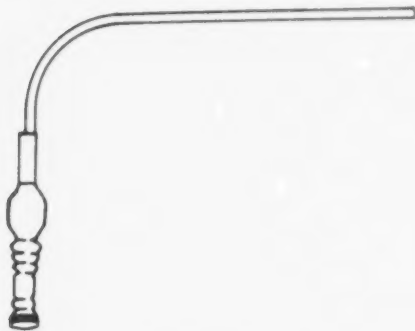
Written Test



c. _____

d. _____

10. Identify the following basic suctioning/aspirating instruments.



a. _____

643 _____

Written Test

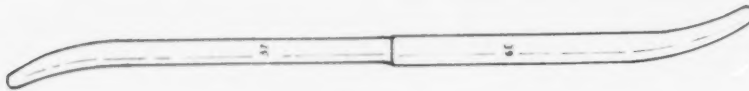


c. _____



d. _____

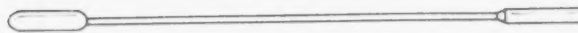
11. Identify the following basic dilating/probing instruments.



a. _____



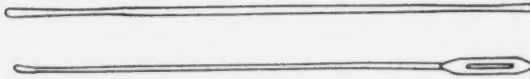
b. _____



c. _____

649

Written Test



d. _____

12. Complete the following statements concerning the handling and care of surgical instruments by placing the correct letters in the blanks.

_____ a. Clamps should be closed on the _____ ratchet only.

- (1) tightest
- (2) second
- (3) middle
- (4) first

_____ b. Instruments are passed in a/an _____.

- (1) operating room only
- (2) calm and gentle manner
- (3) positive and decisive manner
- (4) wide variety of techniques

_____ c. Short instruments are usually used for _____.

- (1) superficial work
- (2) adjusting surgical drapes
- (3) deep body cavities
- (4) handling surgical specimens

_____ d. Prolonged soaking of instruments may _____.

- (1) loosen soil more effectively
- (2) assist in decontamination
- (3) damage surface areas
- (4) make them easier to clean

_____ e. Loose instruments on the sterile field should be _____.

- (1) left alone for the surgeons' use
- (2) considered contaminated
- (3) left alone until the final count
- (4) removed immediately after use

Written Test

- _____ f. When passing a surgical instrument to another person, the instrument should be held by the _____.
- (1) box lock
 - (2) tips
 - (3) ring handles or ends
 - (4) jaws
- _____ g. At the completion of the operative procedure, all hinged instruments should be _____.
- (1) placed in a separate container
 - (2) opened to expose box locks
 - (3) flushed with distilled water
 - (4) placed in an enzymatic soak
- _____ h. Decontamination of surgical instruments should begin _____.
- (1) in the central supply area
 - (2) immediately after completion of the case
 - (3) before the final count is taken
 - (4) when automated cleaning is available
- _____ i. During the surgical procedure, instruments with lumens should be kept patent by _____.
- (1) using a probe to remove obstructions
 - (2) blowing through the center of the lumen
 - (3) using a pipestem cleaner
 - (4) irrigating with sterile water
- _____ j. At completion of the surgical procedure, sharp, semi-sharp, and delicate instruments should be _____.
- (1) placed back in the instrument set
 - (2) put in the contaminated trash
 - (3) separated for special handling
 - (4) given immediately to the circulating nurse

Written Test

13. Match the parts of an endoscope on the right with the correct descriptions.

- | | | |
|----------|--|-------------------|
| _____ a. | Incandescent light bulb or fiberoptic bundle that makes cavity or organ visible to surgeon | 1. Viewing sheath |
| _____ b. | Additional instruments passed through or attached to the sheath to accomplish other diagnostic or therapeutic procedures | 2. Power source |
| _____ c. | Round, tube-like supporting structure that accepts the lighting to be used and any accessories needed | 3. Light source |
| _____ d. | Fiberoptic light projector or rheostat that provides electric current for the fiberoptic bundle | 4. Accessories |

14. Complete statements concerning the handling and care of endoscopes by circling the answer that best completes each statement.

- a. All scopes must be (dry, moist) before storing.
- b. Clean around lens with a fine (wire, toothpick).
- c. Use a (non-aerosol, pipestem) cleaner to dry inside of sheath.
- d. Endoscopes must be (mechanically, chemically) cleaned thoroughly after use.
- e. Endoscopes are (strong, delicate) and expensive instruments.
- f. Use (warm, cold) water when cleaning.
- g. Do not use any cleaning agent that may contain (alcohol, disinfectant).

**Instrumentation
Unit 2-C**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Identify Basic Surgical Instruments Rating _____

Comments: _____

Assignment Sheet 2—Classify Basic Surgical Instruments
According to Their Functions Rating _____

Comments: _____

Job Sheet 1—Load and Unload a Scalpel Blade
on a Scalpel Handle Rating _____

Comments: _____

Job Sheet 2—Pass Various Instruments to Another Person Rating _____

Comments: _____

Job Sheet 3—Assemble a Balfour Abdominal Retractor Rating _____

Comments: _____

Unit Evaluation Form

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____

Date _____

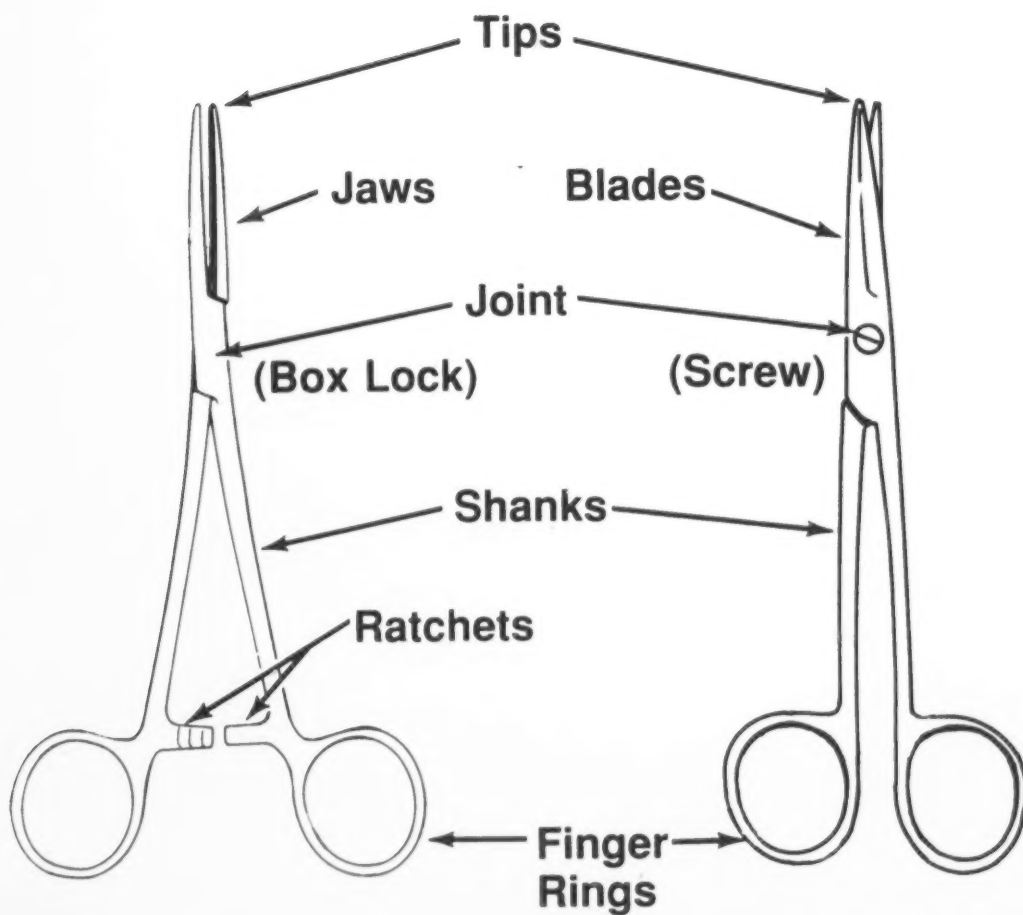
Student Signature _____

Date _____

654

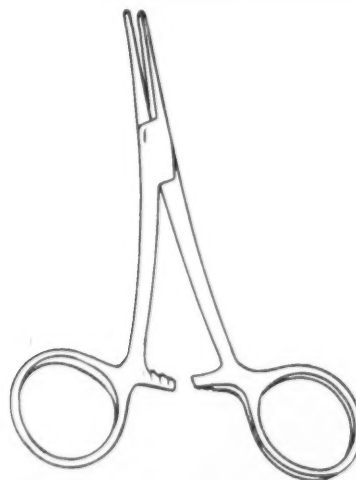
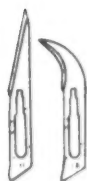
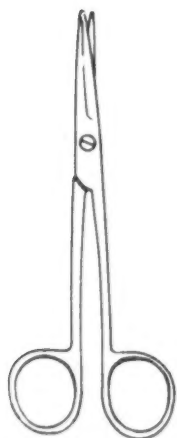
*Permission to duplicate this form is granted.

Parts of a Surgical Instrument



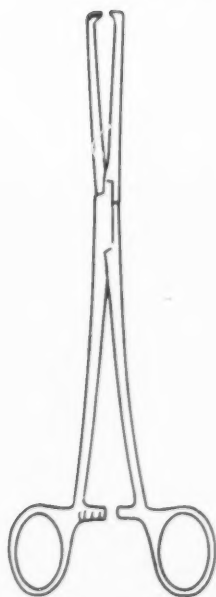
655

Classifications of Surgical Instruments



**Cutting/Dissecting
(Sharps)**

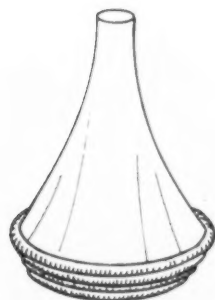
Clamping/Occluding



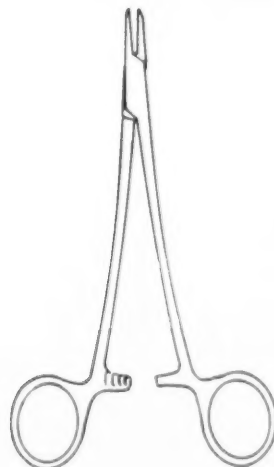
Grasping/Holding

Retracting/Exposing

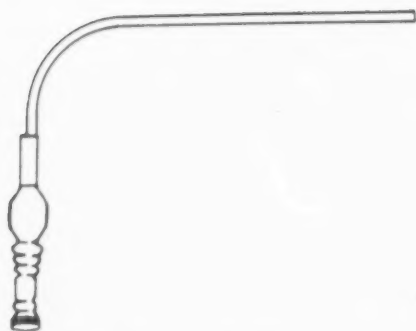
Classifications of Surgical Instruments (Continued)



Viewing



Suturing/Stapling



Suctioning/Aspirating



Dilating/Probing

**Instrumentation
Unit 2-C**

Information Sheet

1. Terms and definitions

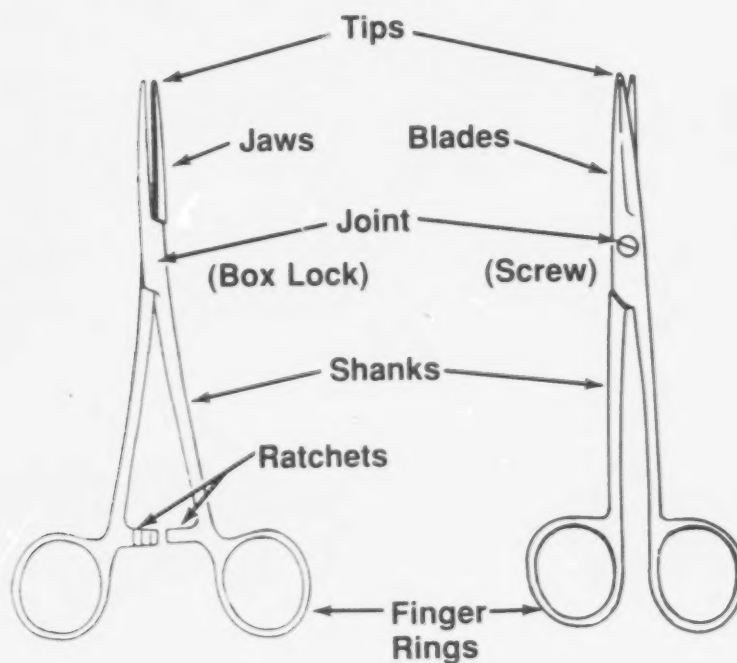
- a. **Atraumatic** — Not having a biting or crushing effect on tissue
- b. **Box lock** — Hinge joint of an instrument
- c. **Clamp** — Instrument which presses two or more parts together to constrict or hold firmly
- d. **Director** — Grooved device for guiding a knife in surgery and for identifying sinus tracts
- e. **Dissect** — To separate tissues or parts
- f. **Endoscope** — Instrument equipped with a lighting system for visualization within a body cavity or organ
- g. **Endoscopy** — Visual examination of the interior of a body cavity or organ using an endoscope
- h. **Forceps** — Two-bladed instrument used as a pincher to hold, grasp, or extract an object
- i. **Ligature** — Strand of suture material used for tying a blood vessel or other structure to constrict or bind it
- j. **Malleable** — Capable of being bent or shaped as needed
- k. **Occlude** — To close up, obstruct, or join together
- l. **Probe** — Instrument for exploring the depth and direction of a wound or sinus
- m. **Ratchets** — Interlocking parts between the finger rings of surgical instruments which lock to keep the instrument closed
- n. **Retractor** — Instrument used to hold open the edges of a wound or to hold tissue or organs away from the area where the surgeon is working
- o. **Self-retaining** — Capable of being placed in a fixed position
- p. **Serrations** — Grooves on the jaws of surgical instruments which allow for firm holding of tissue

Information Sheet

- q. **Suction** — Act of sucking up a liquid or solid by reducing the air pressure over the surface of that liquid or solid
- r. **Teeth** — Prongs at the tips of surgical instruments which allow firm grasping of tissue

2. **Parts of a surgical instrument**

Figure 1

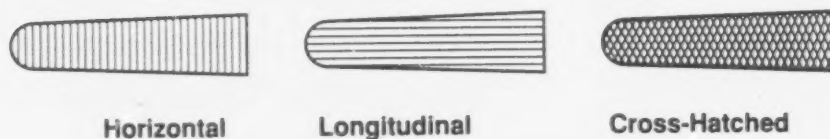


Information Sheet

a. Blades or jaws

- (1) Considered the working end of an instrument
- (2) Part that makes contact with the tissue
- (3) Blades may be sharp (as on scissors) or blunt (as on retractors).
- (4) Jaws may be serrated, smooth, or toothed.
 - (a) Serrations may be horizontal, longitudinal, or crosshatched (diamond).

Figure 2—Types of serrations



- (b) Teeth may be used at the tips of the jaws or at various points along their length depending on the function of the instrument.

Figure 3—Examples of teeth



Note: There are many variations of teeth possible such as 1 x 2, 2 x 3, 3 x 4, 4 x 5, and multi-toothed.

- (c) An insert of solid tungsten carbide with diamond-cut precision teeth may be included on jaws to prevent twisting or turning of the object being held.
- (d) Various configurations of the jaws will determine the instrument's function and help identify its proper name.

Information Sheet

b. Joint

- (1) Hinge point of the instrument
- (2) Most difficult part of the surgical instrument to keep clean
- (3) Three types
 - (a) Screw joint [two halves connected with screw or pin]
 - (b) Box lock joint [one arm passes through slot of other arm]
 - (c) Semi-box or aseptic joint [one arm passes through slot but the arms can be separated for easy cleaning]

c. Shanks

- (1) Run from the joint to the finger rings
- (2) Create the "closing force" on the jaws of the instrument

Note: The longer the shanks, the greater the closing force.
- (3) Long shanks are used in deep body cavities.
- (4) Most have a round shape but cardiovascular instruments may be square.

d. Ratchets

- (1) Commonly found on clamps and needle holders to lock the instrument in a closed position
- (2) Located above the finger rings on the shanks
- (3) Have a number of angled grooves on each shank

Note: When the instrument is closed, the grooves come together and lock. They may be released by a sideways motion when your fingers are in the finger rings.
- (4) Are a difficult area of the instrument to keep clean

Information Sheet

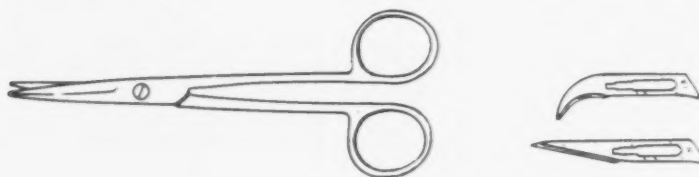
e. Finger rings

- (1) Located at the opposite end of the instrument from the jaws
- (2) Control the jaws when fingers are placed here
- (3) Rings are usually closed and oval in shape.

3. Classification of surgical instruments

a. Cutting/dissecting instruments (sharps)

Figure 4



- (1) Have sharp or cutting edges
- (2) Used to incise, separate, or excise tissues
- (3) Include scalpels, knives, and scissors
 - (a) Scalpels have various sizes of reusable handles (sometimes called a knife handle) with various sizes of attaching disposable blades.

Caution: An instrument, never fingers, is used to attach and detach the blade from the handle. The instrument must not touch the cutting edge.

- (b) Knives are usually disposable and come in various sizes and configurations with a blade at one end which may have one or two cutting edges. Knives are designed for very specific uses.
- (c) Scissors are designed in various sizes, with different tips and blades.
 - Long, short, fine, medium, and heavy sizes
 - Sharp or blunt tips
 - Straight or curved blades

Information Sheet**b. Clamping/occluding instruments**

Figure 5



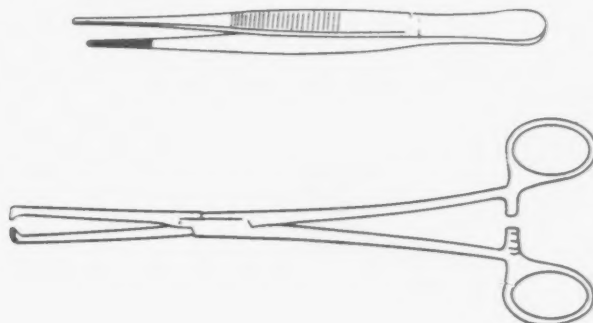
- (1) Generally are used for hemostasis which allows surgery to proceed with minimal blood loss during the course of dissection
- (2) Are designed for clamping small bleeding vessels; may also be used for tagging sutures

Note: Other uses may damage the clamp.

- (3) Constructed of two halves which are held together at a joint
- (4) Include straight, curved, or right-angled hemostatic forceps or clamps

c. Grasping/holding instruments

Figure 6

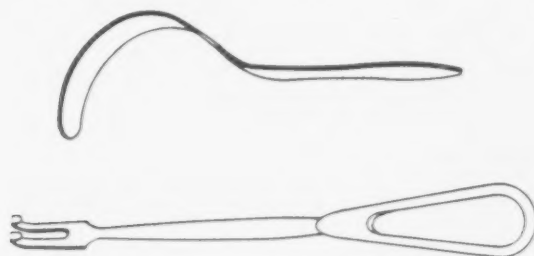


Information Sheet

- (1) Used for tissue retraction or suturing
- (2) Must allow for firm grip with minimal tissue trauma
- (3) Include thumb forceps, holding forceps, and towel clamps
 - (a) Thumb forceps are two-armed spring forceps.
 - (b) Holding forceps have handles like clamps with specialized tips.
 - (c) Towel clamps are used to hold surgical drapes.

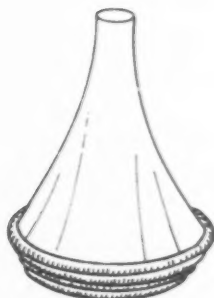
d. **Retracting/exposing instruments**

Figure 7



- (1) Used for exposure of the operative field

Note: Maximum exposure with minimal tissue trauma is preferred.
- (2) Include hand-held and self-retaining retractors
 - (a) Hand-held retractors may have notched, hook-shaped, or ring-shaped handles which allow for a firm grip.
 - (b) Self-retaining retractors may be small with blades held apart by ratchets or large with blades that attach to a frame.
 - Blades may be smooth, right-angled, rake, hook, or curved.
 - Blade width and depth varies.

Information Sheet**e. Viewing instruments****Figure 8**

- (1) Used for viewing the interior of body cavities, hollow organs, or structures
- (2) Include specula and endoscopes
 - (a) Specula generally have hinged blunt blades that enlarge and hold open a canal such as the ear, nose, vagina, or rectum.
 - (b) Endoscopes may be hollow (rigid metal sheath) which allows viewing in a forward direction, or lensed (rigid or flexible sheath with an eyepiece and telescopic lens system) for viewing in several directions.

f. Suturing/stapling instruments**Figure 9**

Information Sheet

- (1) Used to assist in bringing cut edges together or to unite body parts
- (2) Include needle holders and stapling devices
 - (a) Needle holders are used to grasp and hold curved surgical needles.
 - Resemble hemostatic forceps except for the jaws
 - Jaws are short, sturdy, and usually straight, but may be curved or angled.
 - Handles are long to facilitate needle placement.
 - May have a ratchet similar to a clamp or be of a spring action and lock type
 - Inside surfaces of the jaws may differ according to function:
 - Diamond jaw has a tungsten carbide insert designed to eliminate twisting and turning of the needle.

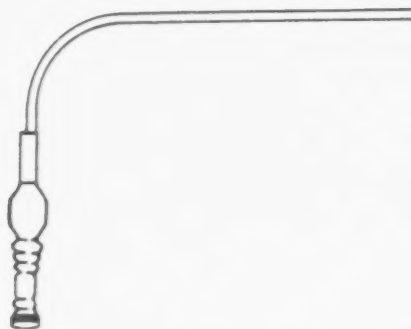
Note: Diamond-jaw needle holders can be identified by the gold-plating on the handles.

 - Crosshatched serrations provide a smooth surface and prevent damage to the needle.
 - Smooth jaws have no serrations and are used with small needles.
 - A longitudinal groove or pit in the jaw releases tension, prevents flattening of the needle, and holds the needle firmly in place.
 - (b) Staplers contain U-shaped lengths of wire that are pushed through the tissues. The ends are then bent over an anvil to the shape of a "B."
 - Are mechanical devices which can be either disposable or non-disposable
 - Utilize cartridges of tiny stainless steel or titanium staples or absorbable nonmetallic staples. The cartridges are commercially pre-loaded, pre-sterilized, and pre-packaged.
 - Each type of stapler is designed for stapling specific tissues such as skin, fascia, bronchus, gastrointestinal tract, or vessels.

Information Sheet

g. Suctioning/aspirating instruments

Figure 10

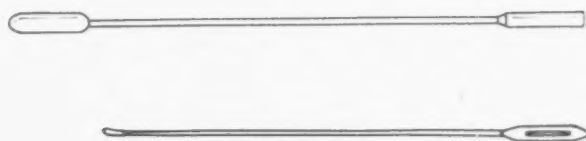


- (1) Used to remove blood, body fluids, tissue fluids, and irrigating solutions from the surgical site
- (2) Include mechanical suction or manual aspiration devices
 - (a) Suction devices apply pressure at the operative site to withdraw fluids which facilitates viewing.
 - Appropriate style tip is attached to sterile tubing.
 - Tips may be reusable or disposable.
 - Style of tip will depend on where it is to be used and the surgeon's preference.
 - (b) Manual aspiration devices are used to withdraw fluids or tissue for laboratory examination. May be accomplished with a needle and syringe, trocar, or cannula.
 - A trocar is used to cut through tissue to access fluid or a body cavity. It has sharp cutting edges at the end of a hollow tube.
 - A cannula has a blunt end and perforations around the tip to aspirate fluid without cutting tissue. May also be used to open blocked ducts, vessels, and to shunt blood flow from the operative site.

Information Sheet

h. Dilating/probing instruments

Figure 11



- (1) A dilator is used to enlarge openings and ducts.
- (2) A probe is used to explore a structure or to locate an obstruction.

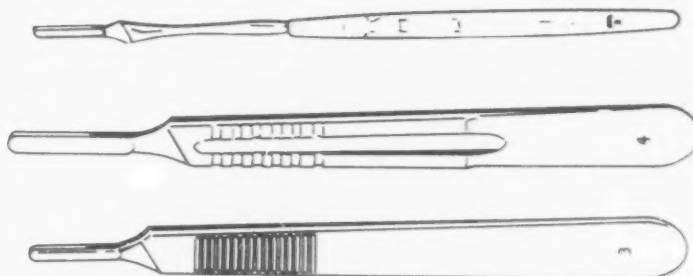
4. Basic cutting/dissecting instruments (sharps)

Note: Most instruments have a proper name and a common name. The proper name will be listed first and the common name will be listed at the end of each instrument's description.

a. Scalpel handles

- (1) Handles may be 5" - 8 3/8" in length.
- (2) #3 handles hold blades #10, 11, 12, and 15.
- (3) #4 handles hold blades #20 through 25.
- (4) #7 handles hold blades #10, 11, 12, and 15.

Figure 12



Information Sheet

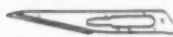
b. Scalpel blades

Figure 13

(1) No. 10



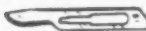
(2) No. 11



(3) No. 12



(4) No. 15



(5) No. 20



c. Mayo dissecting scissors

Figure 14

(1) Length may be 5 1/2" - 11".

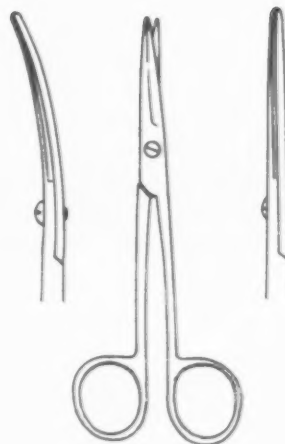
(2) Blades may be straight or curved.

(3) Tips are blunt.

(4) Used for cutting and blunt dissection of heavy (tougher) tissue

(5) A straight Mayo may also be used as suture scissors.

(6) Common names: Mayos, heavy scissors, suture scissors

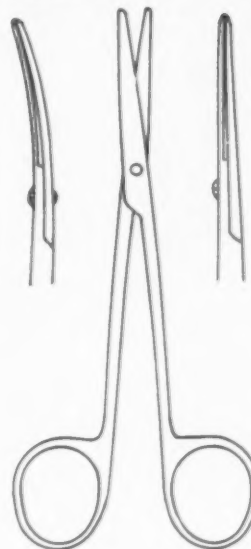


Information Sheet

d. Metzenbaum dissecting scissors

- (1) Length may be 5 3/4" - 11".
- (2) Blades may be straight or curved.
- (3) Tips are blunt.
- (4) Used for cutting and blunt dissection of delicate tissue
- (5) Common names: Metz or tissue scissors

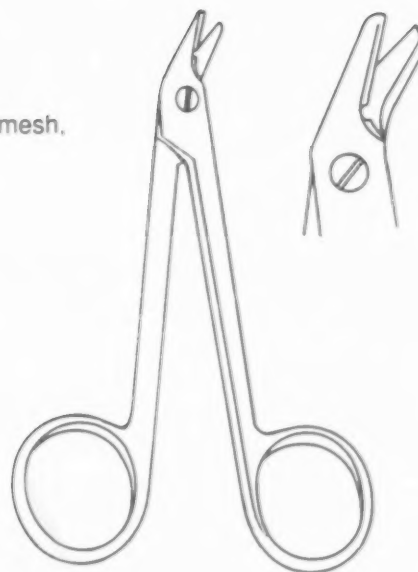
Figure 15



e. Wire cutters

- (1) Length is 4 3/4".
- (2) Blades are angled.
- (3) Used to cut wire, wire mesh, and sutures

Figure 16

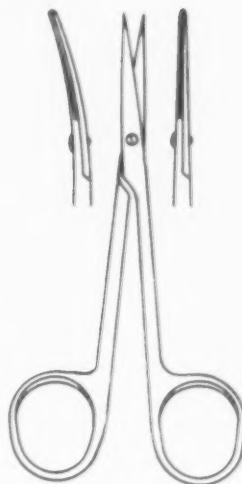


Information Sheet

f. Iris scissors

Figure 17

- (1) Length is 3 1/2" - 4 1/2".
- (2) Blades may be straight or curved.
- (3) Tips are pointed and very sharp.
- (4) Used for fine delicate surgery and sharp dissection as in eye and plastic surgery
- (5) Common names: Iris, small/sharp scissors



5. Basic clamping/occluding instruments

a. Halsted mosquito forceps (clamps)

Figure 18

- (1) Length is 4" to 6".
- (2) Jaws may be straight or curved.
- (3) Horizontal serrations extend the entire length of jaws.
- (4) Used to clamp small vessels and blunt dissection as in pediatric, plastic, and other delicate surgery
- (5) Common names: Mosquitoes, snaps, hemostats, stats, clamps



Information Sheet

b. Crile hemostatic forceps

Figure 19

- (1) Length is 5 1/2" to 6 1/2".
- (2) Jaws may be straight or curved.
- (3) Horizontal serrations extend the entire length of jaws.
- (4) Used to clamp vessels and for blunt dissection
- (5) Common names: Criles, clamps



c. Rankin hemostatic forceps

Figure 20—(tips pictured only)

- (1) Length is 6 1/4".
- (2) Jaws may be straight or curved.
- (3) Horizontal serrations extend half the length of jaws.
- (4) Used to clamp vessels and for blunt dissection
- (5) May be confused with Kelly hemostatic clamps



Information Sheet

d. Kelly hemostatic forceps

Figure 21—(tips pictured only)

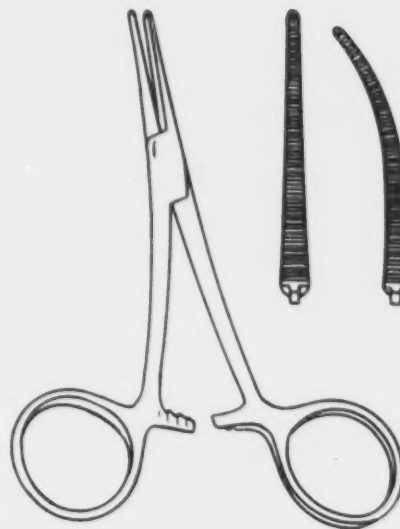
- (1) Length is 5 1/2".
- (2) Jaws may be straight or curved.
- (3) Horizontal serrations extend half the length of jaws.
- (4) Used to clamp vessels and blunt dissection
- (5) Similar to a Rankin except the jaws are slightly larger.



e. Pean hemostatic forceps

Figure 22

- (1) Length is 5 1/2" - 8".
- (2) Jaws may be straight or curved.
- (3) Has heavy tips with heavy serrations that extend the entire length of the jaws
- (4) Used to clamp larger vessels or tissue
- (5) Can be traumatic to the tissue and are generally used on tissue to be resected
- (6) Common names: Peans, Rochester-Pean, Mayo, large forceps

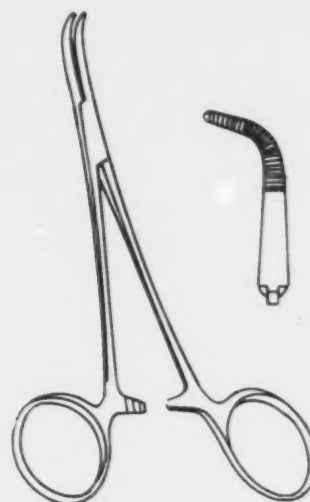


Information Sheet

f. Mixer gall duct forceps

Figure 23

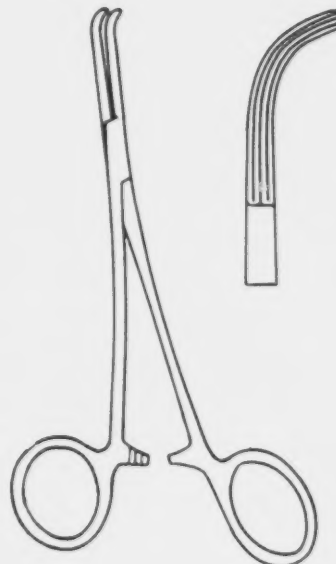
- (1) Length is 5 1/4" - 7 1/4".
- (2) Jaws are right-angled.
- (3) Tips are rounded with horizontal serrations that extend the entire length of the jaws.
- (4) Used in general and vascular surgery for clamping hard-to-reach vessels and in placing sutures behind or around a vessel or duct
- (5) Common names: Mixer, right angle, full curve, Schnidt



g. Lahey gall duct forceps

Figure 24

- (1) Length is 7 1/2" - 9".
- (2) Jaws are right-angled.
- (3) Tips are fine and rounded with longitudinal serrations that extend the entire length of the jaws.
- (4) Used in general and vascular surgery for clamping hard-to-reach smaller vessels and in placing sutures behind or around a vessel or duct
- (5) Common names: Right angle, (sometimes confused with Mixer gall duct forceps)



Information Sheet

h. Schnidt tonsil forceps

Figure 25

- (1) Length is 7 1/2".
- (2) Jaws are fully curved or slightly curved.
- (3) Tips are delicate with horizontal serrations that extend half the length of the jaw.
- (4) Used in general and oral surgery to grasp tissue or clamp small vessels that are somewhat deeper in the cavity
- (5) Common names: Schnidt, tonsil, Adson

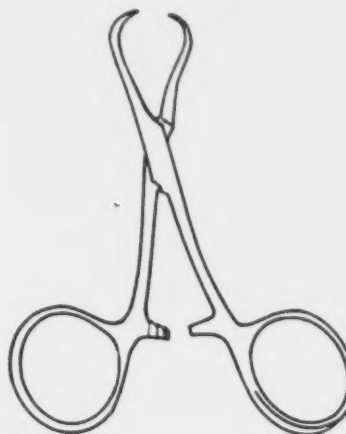


6. Basic grasping/holding instruments

a. Backhaus towel clamp

Figure 26

- (1) Length is 3 1/2" to 5 1/4".
- (2) Jaws are rounded with each forming a half circle overlapping at the tip.
- (3) Tips are sharp and will perforate material (including waterproof drapes) or tissue.
- (4) Used for holding towels and drapes in place during surgery
- (5) Common names: Backhaus clamp, towel forceps, towel clamp

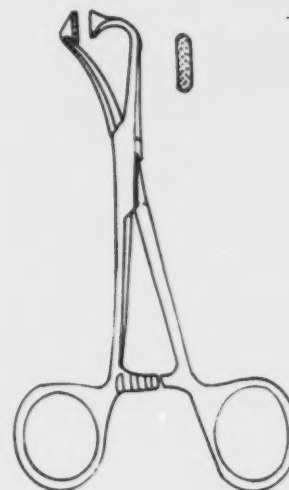


Information Sheet

b. Atraumatic towel clamp

Figure 27

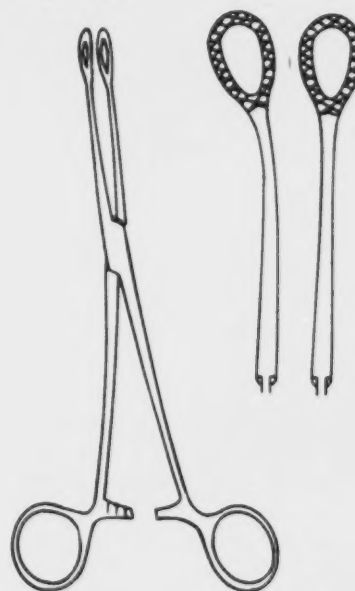
- (1) Length is 3 1/2" to 5 1/4".
- (2) Jaws are rounded with each forming a sharply curved half circle turning downward.
- (3) Tips are oblong with a fine serrated diamond edge.
- (4) Ratchets are extra long and facilitate grasping larger amounts of drapes.
- (5) Used for holding towels and drapes without tearing or perforating the material
- (6) Common names: Backhaus non-perforating towel clamp, non-perforating towel clamp



c. Foerster sponge forceps

Figure 28

- (1) Length is 7" to 9 1/2".
- (2) Shanks are long with each tip forming an oval.
- (3) Ovals frequently have cross serrations, although some may be smooth.
- (4) Used for holding sponges securely during prepping or to sponge a wound during surgery. May also be used to grasp non-delicate tissue or extract fetal placenta
- (5) Common names: Ring forceps, sponge stick, sponge forceps, sponge clamp

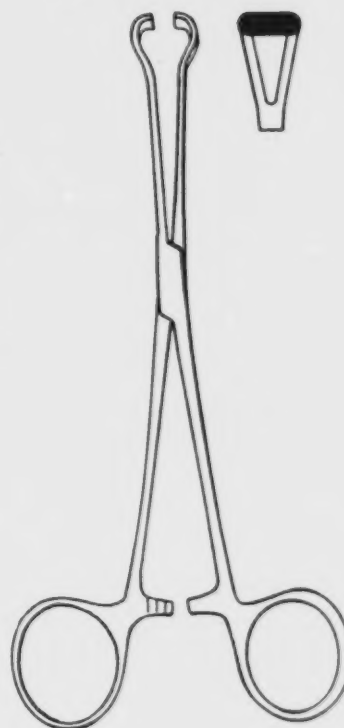


Information Sheet

d. Babcock intestinal forceps

Figure 29

- (1) Length is 6 1/4" to 9 1/4".
- (2) Each tip forms a small half circle when viewed from the side. When viewed from the front to back, the tips split forming a "V".
- (3) The top of the "V" is closed by a bar with horizontal serrations which form the tips of the jaws.
- (4) Used for grasping/holding tissue of the gastrointestinal tract. May also be used to grasp fallopian tubes or over a vessel to isolate it.
- (5) Common names: Babcock, babcock clamps

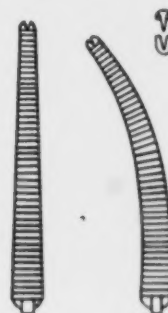


Information Sheet

e. Rochester-Ochsner forceps

Figure 30—(tips pictured only)

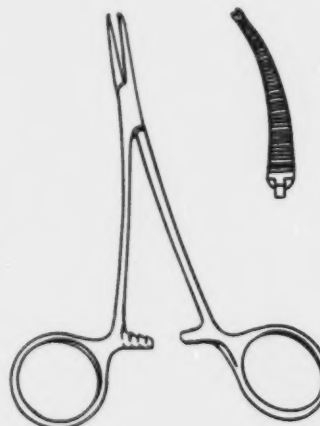
- (1) Length is 6 1/4" to 10".
- (2) Tips have 1 × 2 teeth.
- (3) Jaws may be straight or curved.
- (4) Jaws are heavy and have deep horizontal serrations that continue to the box lock.
- (5) Although called an artery forceps, this is usually used to grasp heavy tissue such as broad ligaments. The longer length is suitable for deep cavities.
- (6) Common names: Ochsner, (sometimes confused with the Kocher)



f. Kocher artery forceps

Figure 31

- (1) Length is 5 1/2".
- (2) Jaw tips have 1 × 2 teeth.
- (3) Jaws may be straight or curved.
- (4) Tips have horizontal serrations that continue to the box lock.
- (5) Used for heavy tissue such as abdominal muscle fascia
- (6) Common names: Kocher, Kocher clamps, Ochsner

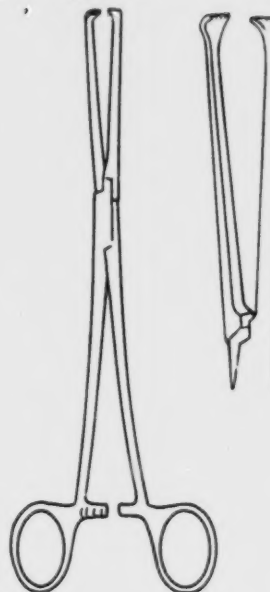


Information Sheet

g. Allis intestinal forceps

Figure 32

- (1) Length is 6" to 7 1/2".
- (2) Jaws have small interlocking teeth which may be 4 x 5 or 5 x 6.
- (3) Used to grasp or hold intestinal tissue. The teeth are traumatic and cause tissue damage.
- (4) Common names: Allis, Allis clamps



h. Plain tissue forceps (without teeth)

- (1) Length is 4 1/2" to 12".
- (2) Jaws have rounded tips with horizontal serrations.
- (3) The outer shanks also have horizontal serrations to enhance the surgeon's grip.
- (4) Used to hold gauze sponges, dressings, and delicate tissue such as skin grafts
- (5) Common names: Dressing forceps, thumb forceps, long fingers, pick-ups, dull broad

Figure 33

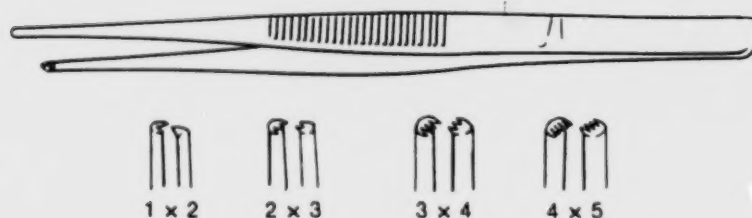


Information Sheet

i. Tissue forceps with teeth

- (1) Length is 5" to 12".
- (2) Jaws have interlocking teeth in various sizes: 1 x 2, 2 x 3, 3 x 4, and 4 x 5.
- (3) The shanks are long and slender with outer horizontal serrations to enhance grip.
- (4) Used predominately in plastic surgery
- (5) Common names: Rat tooth, pick-ups with teeth, lion jaw

Figure 34



j. Adson tissue forceps

Note: There are many forms of Adson-type tissue forceps. Most have slight variations in the type of teeth, tips, jaws, and weight of the instrument.

- (1) Length is 5".
- (2) Jaws may be plain or have teeth (1 x 2, 2 x 3, or multiple).
- (3) Jaws of the toothed Adson has fine, diamond-shaped serrations to enhance hold on tissue.
- (4) Outer shanks have horizontal serrations to enhance surgeon's grip.
- (5) Used to grasp delicate tissue and skin

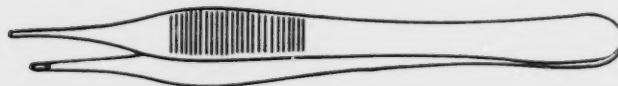
Information Sheet

- (6) Common names: Small pick-ups, Adsons, rat tooth

Figure 35



Adson with serrations



Adson with teeth

- k. Russian tissue forceps

- (1) Length is 6" to 14".
- (2) Tips are rounded with deep, circular interlocking serrations.
- (3) Outer shanks have horizontal serrations to enhance grip.
- (4) Used to grasp organs and skin; widely used in OB/GYN procedures
- (5) Common names: Russians, Russian pick-ups

Figure 36



Information Sheet

l. DeBakey tissue forceps

- (1) Length is 6" to 9 1/2".
- (2) Tips are rounded with long slender jaws.
- (3) Jaws have split horizontal serrations to enhance grasping; may also have tiny 1 x 2 interlocking teeth.
- (4) Outer shanks have deep horizontal serrations to enhance grip.
- (5) Used to grasp delicate tissues, organs, and vessels; widely used in cardiovascular surgery
- (6) Common names: DeBakeys, atraumatic pick-ups, magics

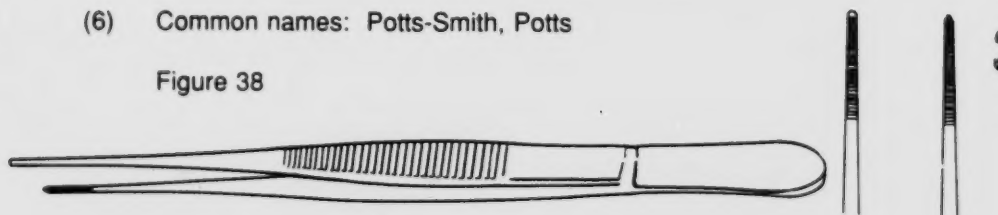
Figure 37



m. Potts-Smith tissue forceps

- (1) Length is 7" to 12".
- (2) Tips are slim and rounded.
- (3) Jaws may have horizontal or diamond serrations and have 1 x 2 teeth.
- (4) Shanks may have a pin that prevents over-squeezing the instrument which bends the tips. Outer shanks have horizontal serrations to enhance grip.
- (5) Used to grasp delicate tissues; widely used in cardiovascular surgery
- (6) Common names: Potts-Smith, Potts

Figure 38

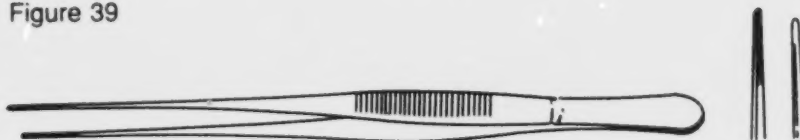


Information Sheet

n. Cushing tissue forceps

- (1) Length is 7" to 8".
- (2) Tips are rounded with long slender jaws.
- (3) Jaws have horizontal serrations and may have 1 × 2 interlocking teeth.
- (4) Shanks may have a pin that prevents over-squeezing the instrument which bends the tips. Outer shanks have horizontal serrations to enhance grip.
- (5) Used to grasp delicate tissues
- (6) Common names: Cushings, fine pick-ups

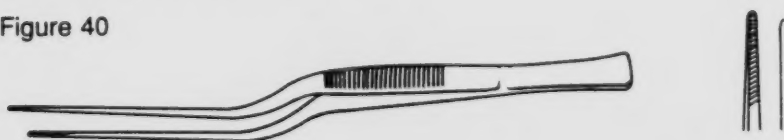
Figure 39



o. Cushing bayonet tissue forceps

- (1) Length is 7 1/2".
- (2) Tips are blunt.
- (3) Jaws have deep horizontal serrations to enhance grasping.
- (4) Shanks may have a pin that prevents over-squeezing the instrument which bends the tips. Shanks have an "S" curve half way down length of instrument, with outer horizontal serrations to enhance grip.
- (5) Proximal end of the instrument is used for blunt dissection.
- (6) Used when maximum visibility to operative site is required. Length also facilitates work in deep and poorly exposed areas.
- (7) Common name: Bayonets

Figure 40



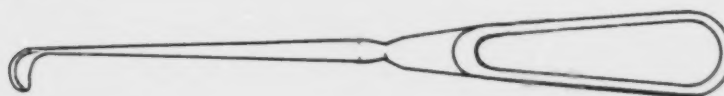
Information Sheet

7. Basic retracting/exposing instruments

a. Cushing vein retractor

- (1) Length is 8 1/2".
- (2) Tip is blade type with a 1/2" width and a 3/8" depth.
- (3) Hand-held
- (4) Used to retract veins and small vessels
- (5) Common names: Cushings, vein retractor

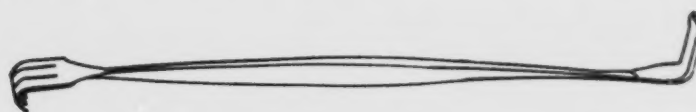
Figure 41



b. Senn retractor

- (1) Length is 6 1/4".
- (2) Double-ended—One end has a three prong rake (may be sharp or dull) and the other end has a slender 90 degree blade that curves slightly under. The whole blade end is angled opposite that of the raked end.
- (3) Hand-held
- (4) Used to retract skin and shallow tissue
- (5) Common names: Senn, rake retractor

Figure 42



Information Sheet

Note: A Mathieu retractor is very similar to the Senn Retractor except that the blade end is angled in the **same** direction as the raked end.

Figure 43



c. Volkmann retractor

- (1) Length is 4 1/2" to 9".
- (2) Tip may have 2 to 6 curved prongs which may be blunt or sharp.
- (3) Hand-held
- (4) Used to retract tissue in shallow incisions
- (5) Common names: Volkmann, rake, cat's paw, pronged retractor

Figure 44



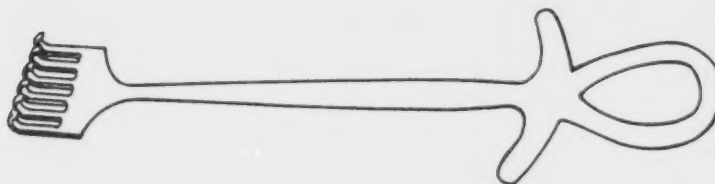
d. Murphy retractor

- (1) Length is 7 1/2".
- (2) Tip may have 2 to 6 curved prongs which may be blunt or sharp.
- (3) Hand-held
- (4) Proximal end has a flange and ring to facilitate easier holding and retraction. Index and middle fingers go around the flange and thumb goes in the ring.
- (5) Used to retract tissues in shallow incisions

Information Sheet

- (6) Common names: Murphy, finger rake

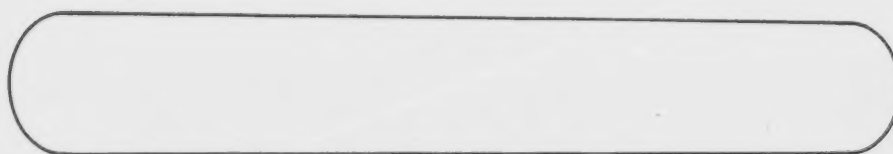
Figure 45



e. Ribbon retractor

- (1) Length is 13".
- (2) Width is 1" to 5" the entire length.
- (3) Hand-held
- (4) Flat, straight stainless steel which permits repeated bending and shaping
- (5) Used where special retraction of tissue requires specific shape
- (6) Common name: Malleable retractor

Figure 46



f. Deaver retractor

- (1) Length is 7" to 10 1/2".
- (2) Width is 3/8" to 3 1/2" at bladed end.
- (3) Hand-held
- (4) Tips are rounded with a circular curved blade.
- (5) Handle may be straight or curved.

Information Sheet

- (6) Used for deep cavity tissue retraction
- (7) Common name: Deaver

Figure 47



g. Kelly retractor

- (1) Length is 10".
- (2) Blade sizes range from 1 1/2" wide x 2" deep to 3" wide x 3 1/2" deep.
- (3) Tip is rounded and curves slightly under with blade angled 90 degrees to the left.
- (4) Hand-held
- (5) Used for deep cavity tissue retraction
- (6) Common names: Kelly, Richardson

Figure 48



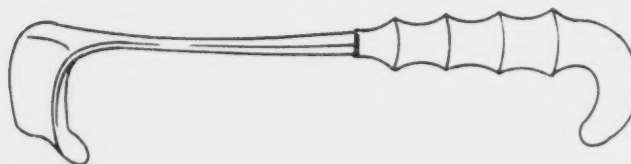
Information Sheet

h. Richardson retractor

- (1) Length is 9 1/4".
- (2) Blade sizes range from 3/4" wide x 1" deep to 1 1/2" wide x 2" deep.
- (3) Tip is rounded and curves under with blade angled 90 degrees to the left.
- (4) Hand-held
- (5) Used to retract tissue during incision
- (6) Common names: Little, medium, large Rich retractor, Kelly

Note: Richardson and Kelly retractors are often confused. Blade width and length are usually the only differences with the Kelly being the larger retractor.

Figure 49



i. Parker retractor

- (1) Length is 5" to 7 1/2".
- (2) Double-ended—Curved "U" shaped bends of unequal size at both ends
- (3) Hand-held
- (4) Used to retract tissue in shallow incisions
- (5) Usually in a set of two

Information Sheet

- (6) Common name: Parker

Figure 50



j. U.S.A. retractor

- (1) Length is 8 1/2".
- (2) Double-ended—Blades angled 90 degrees of unequal size at both ends
- (3) Hand-held
- (4) Used to retract tissue in shallow incisions
- (5) Usually in a set of two
- (6) Common names: U.S. Army, Army-Navy retractor, Army-Navy, right angle

Figure 51

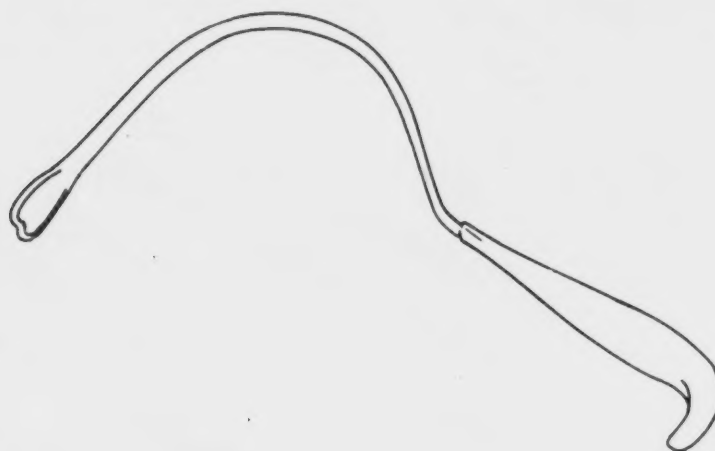


Information Sheet

k. Harrington retractor

- (1) Length is 12 1/2".
- (2) Width is 2 1/2" at bladed end.
- (3) Hand-held
- (4) Shank has large outward curve forming a half circle.
- (5) Used to retract tissue in deep cavities
- (6) Common name: Sweetheart retractor

Figure 52

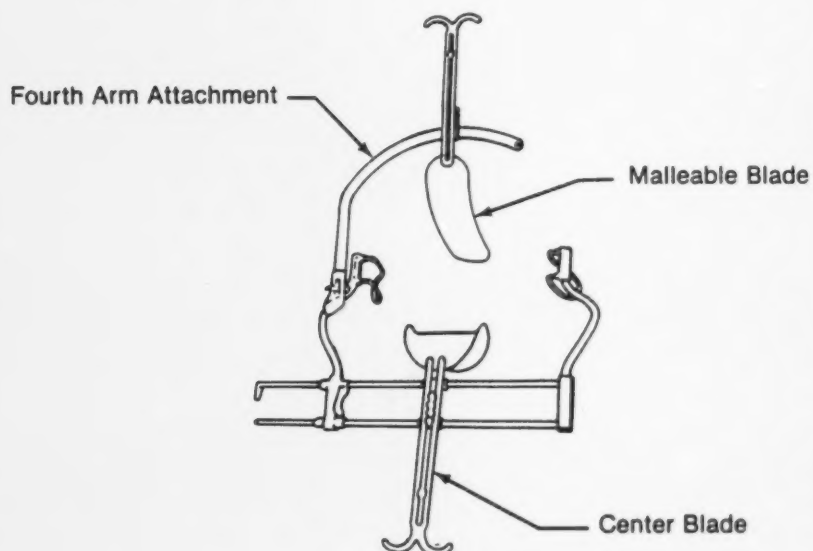


Information Sheet

I. Balfour abdominal retractor

- (1) Self-retaining
- (2) Has six interchangeable blades ranging from 2" to 4" deep
- (3) Exposure is achieved by a 12" wide double round bar.
- (4) Total opening is from 7" to 9 1/4".
- (5) Fourth arm attachment may be right or left.
- (6) Malleable blade is added to fourth arm attachment.
- (7) Used to retract wound edges and internal organs during abdominal procedures
- (8) Common names: Balfour, Meuller-Balfour

Figure 53

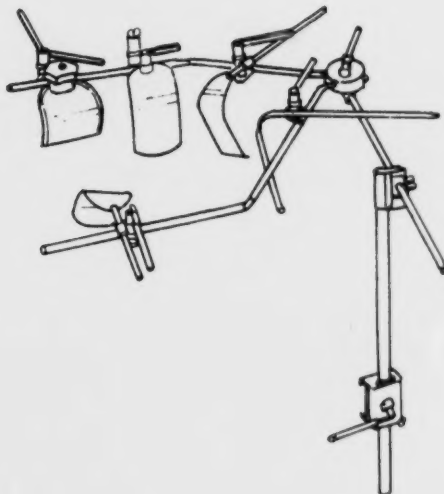


Information Sheet

m. Bookwalter abdominal retractor

- (1) Self-retaining
- (2) Attaches to the operating room table over the sterile drape
- (3) Exposure is achieved by an oval, round, or segmented ring to which retractor blades are attached.
- (4) Total opening is from 8" to 12 1/2".
- (5) Set has fourteen interchangeable blades
- (6) Used to retract wound edges and internal organs during abdominal procedures
- (7) Common name: Bookwalter

Figure 54

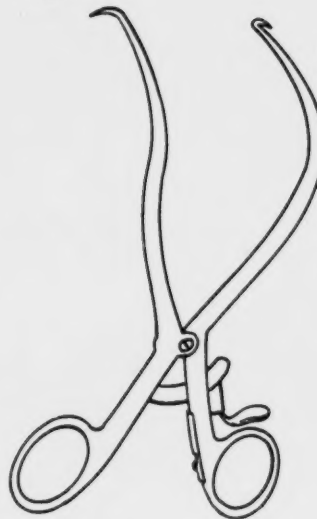


Information Sheet

n. Gelpi retractor

- (1) Length is 5 1/2" to 7".
- (2) Tips are sharp, pointed, and curve down and out.
- (3) Shanks are long with an upward curve.
- (4) Has a self-retaining adjustable ratchet lock with a thumb release
- (5) Used to retract heavy tissue such as muscle
- (6) Common name: Gelpies

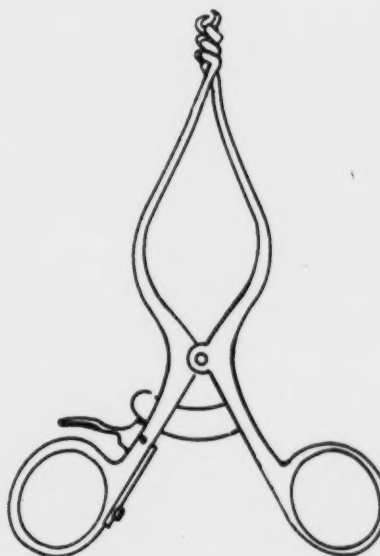
Figure 55



o. Weitlaner retractor

- (1) Length is 4" to 9 1/2".
- (2) Tips are two different blade prongs. One blade has three semi-sharp prong tips, while the other blade has four semi-sharp prong tips. On both, the prong tips turn outward. Some instruments may have blunt prong tips.
- (3) Shanks are long and curve first outward then inward.
- (4) Has a self-retaining adjustable ratchet lock with a thumb release
- (5) Used to retract tissue in shallow areas such as in general, neurologic, and orthopedic procedures
- (6) Common names: Weitlaners, self-retaining rake, cerebellar

Figure 56



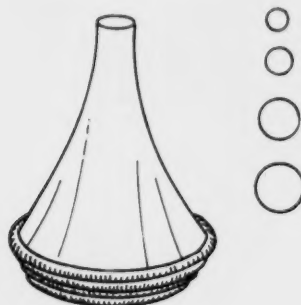
Information Sheet

8. Basic viewing instruments

a. Boucheron ear specula

- (1) Set of four with varying sizes ranging from 4.5mm to 7.5mm openings
- (2) Funnel-shaped with graduated opening
- (3) Used to view the external auditory canal and tympanic membrane
- (4) Common name: Ear speculum

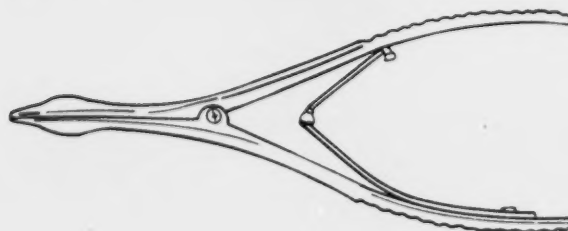
Figure 57



b. Cottle nasal speculum

- (1) Hand-held speculum with spring lock to facilitate viewing
- (2) Rounded blades on lateral sides come in varying lengths
- (3) Used to view the nasal passages
- (4) Common name: Nasal speculum, Vienna speculum

Figure 58

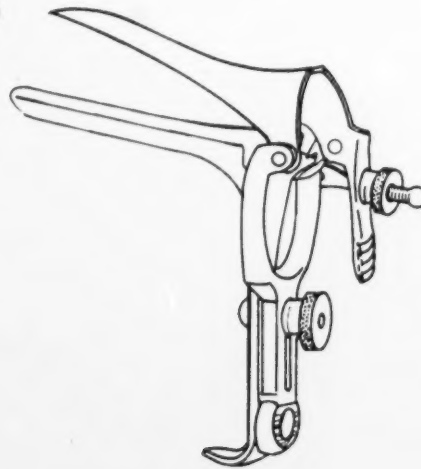


Information Sheet

c. Graves vaginal speculum

- (1) Self-retaining speculum with screw lock
- (2) Superior and inferior rounded blades ranging in size 3/4" wide to 4" length
- (3) Used to view the vaginal canal and cervix
- (4) Common names: Vaginal speculum, Sims

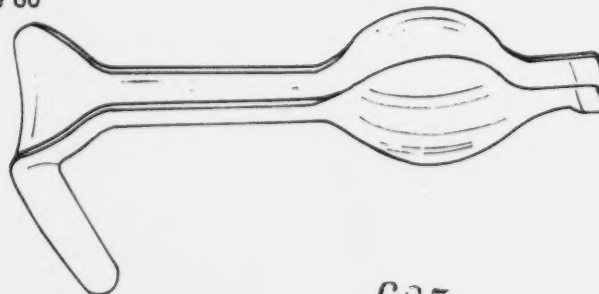
Figure 59



d. Auvarad weighted vaginal speculum

- (1) One large rounded blade at a 45-90 degree angle from handle
- (2) Bell-type weight (2-4 lbs.) at the distal end
- (3) Used to keep the inferior wall of the vaginal canal open during vaginal procedures
- (4) Common name: Weighted vaginal speculum

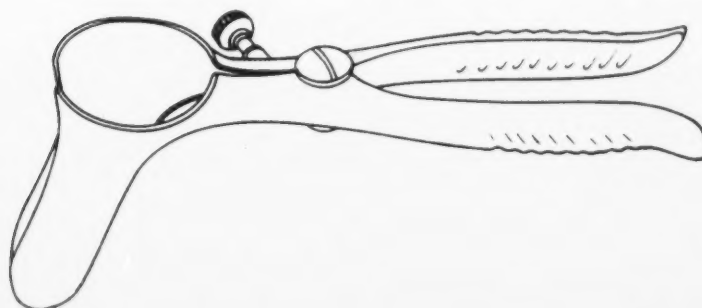
Figure 60



Information Sheet**e. Pratt rectal speculum**

- (1) Self-retaining speculum with screw lock
- (2) Lateral blades 3 1/2" length and 1" wide at distal end
- (3) Used to view the anal canal and maintain opening during rectal procedures
- (4) Common name: Rectal speculum

Figure 61

**f. Endoscopes**

Note: Basic parts of endoscopes and their care and handling will be covered later in this unit.

- (1) Many types are available. The name of the endoscope identifies the surgical procedure or surgical specialty for which it was designed.

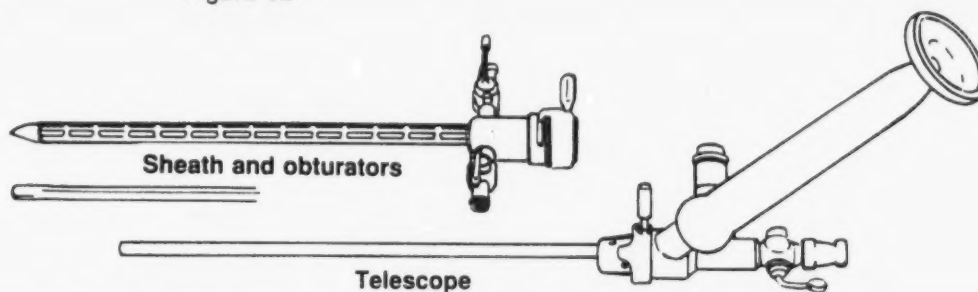
Examples: Arthroscope, bronchoscope, cystoscope, hysteroscope, laparoscope, sigmoidoscope, etc.

- (2) Size and shape of endoscope parts depend on the designed use.
- (3) Endoscope may be placed through a small incision or through a natural body opening.

Information Sheet

- (4) Many surgical procedures can be performed through the endoscope with accessory instruments, in addition to using the scope for diagnostic viewing purposes.

Figure 62

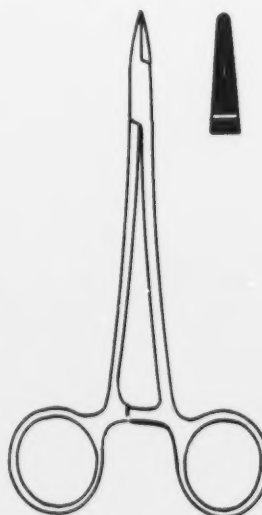


9. Basic suturing/stapling instruments

a. Crile-Wood needle holder

Figure 63

- (1) Length is 6" to 12".
- (2) Tips are thin, rounded, and straight.
- (3) Jaws have diamond-cut serrations with 3,600 teeth/square inch; a slight groove may be present to help secure the needle.
- (4) Shanks are long and rounded on the outside.
- (5) Used to hold fine needles primarily in cardiovascular procedures
- (6) Common names: Vascular needle holder, needle driver, driver

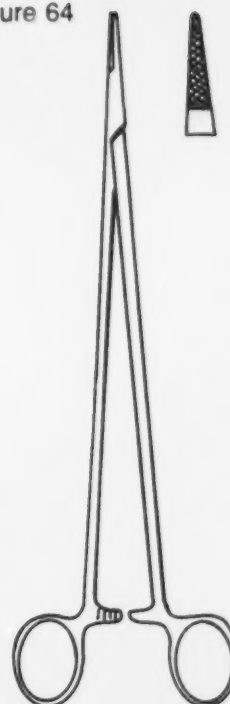


Information Sheet

b. DeBakey needle holder

- (1) Length is 7" to 12".
- (2) Tips are fine, rounded, and straight.
- (3) Jaws have diamond-cut serrations with 3,600 teeth/square inch.
- (4) Shanks are long.
- (5) Used to hold fine needles primarily in thoracic, cardiovascular, vascular, and plastic procedures
- (6) Common names: DeBakeys, diamond jaw, needle driver

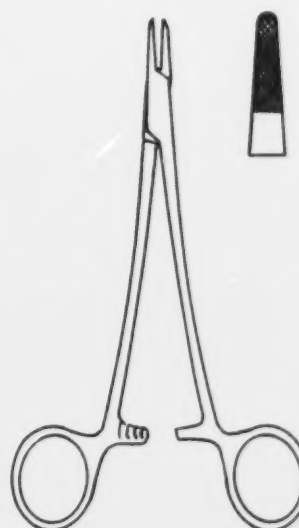
Figure 64



c. Mayo-Hegar needle holder

- (1) Length is 5" to 12".
- (2) Tips are fine, rounded, and straight.
- (3) Jaws have diamond-cut serrations with 2,500 teeth/square inch.
- (4) Shanks are long and rounded on the outside.
- (5) Used to hold medium to heavy gauge needles primarily in general surgery
- (6) Common names: Mayo-Hegar, needle driver, driver

Figure 65



Information Sheet

d. Heaney needle holder

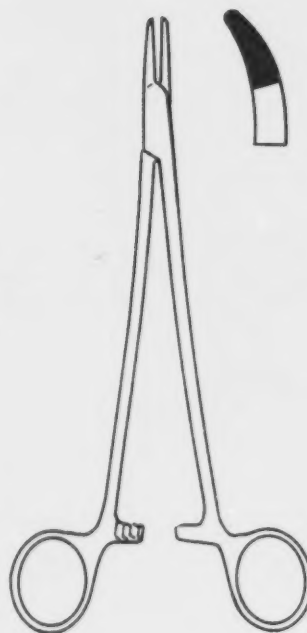
Figure 66

- (1) Length is 8 1/4".
- (2) Tips are rounded and usually curved.

Note: Some companies do make straight Heaney needle holders.

- (3) Jaws have diamond-cut serrations with 2,500 teeth/square inch.
- (4) Shanks are long.
- (5) Used to hold heavy needles primarily in gynecological surgery.
- (6) Common names: OB/GYN needle holder, Heaney (may be confused with a Finochietto needle holder)

Note: The Finochietto has a groove in the jaws and the shanks curve slightly outward at the ring handle.

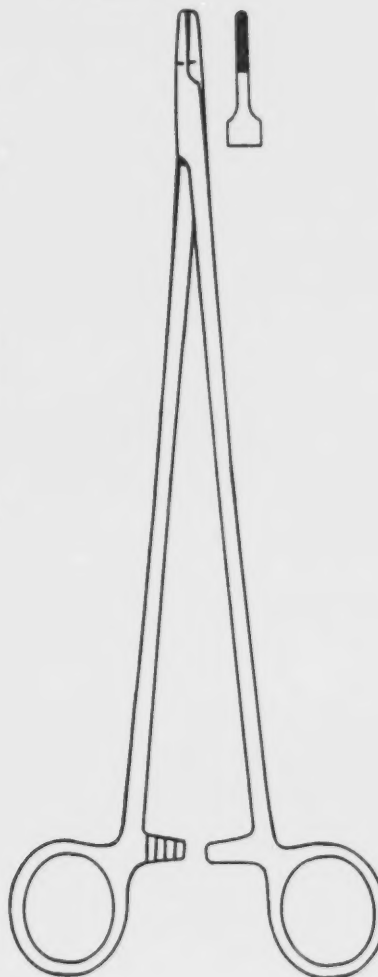


Information Sheet

e. Ryder needle holder

Figure 67

- (1) Length is 5" to 10".
- (2) Tips are narrow and rounded.
- (3) Jaws have diamond-cut serrations with 4,000 teeth/square inch.
- (4) Shanks are long.
- (5) Used to hold fine needles primarily in cardiovascular, vascular, and plastic procedures
- (6) Common names: Ryders, fine needle holders, fine drivers

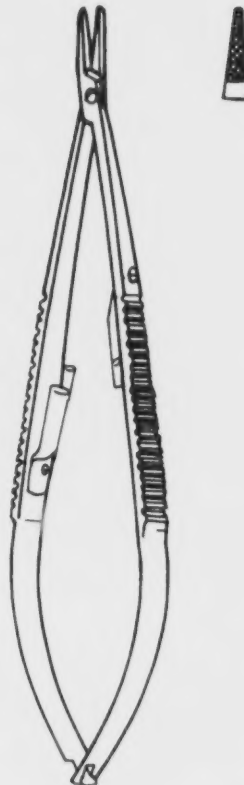


Information Sheet

f. Castroviejo needle holder

Figure 68

- (1) Length is 5 1/2" to 8 1/2".
- (2) Tips are very small.
- (3) Jaws have diamond-cut serrations with 3,600 to 14,000 teeth/square inch and may be straight or curved.
- (4) Shanks are long with a spring handle that requires a locking mechanism to hold needles.
- (5) Used to hold fine needles primarily in cardiovascular, plastic, and eye procedures
- (6) Common names: Cassies, eyed needle holder



g. Stapling instruments (staplers and staple removers)

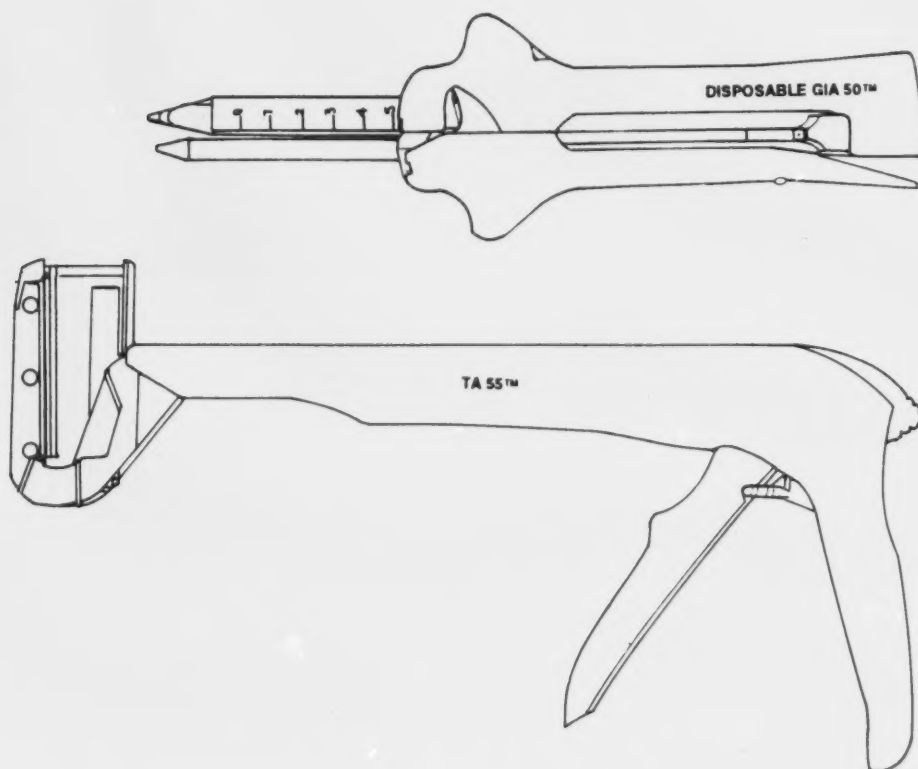
- (1) Staplers may be reusable with disposable staple cartridges or disposable single-use units (stapler and staples both disposable).
- (2) Staple cartridge units are color coded to match the staples with the appropriate stapler.
- (3) Shapes, sizes, and types of staplers vary depending on the manufacturer and the surgical specialty.
 - (a) Common types of staplers include skin, fascia, intraluminal circular (anastomosis), ligating, and ligating and dividing.

Information Sheet

- (b) Model names and numbers often indicate the type of stapler and the size of the staple.

Examples: Auto Suture® GIA 50™, Auto Suture® TA 55™, Ethicon® Proximate Plus Skin Stapler™

Figure 69



- (c) Stapler may place one staple at a time or a double row, depending on the type of stapler.
- (4) The use of stapling instruments decreases operative time and reduces tissue manipulation with reduced edema, inflammation, and recovery time.

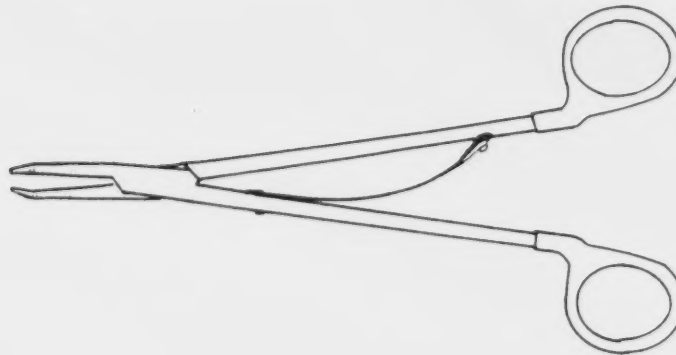
Information Sheet

h. Ligating clip instruments (clip appliers and clip removers)

- (1) Used to ligate small tubular structures such as arteries, veins, and nerves
- (2) Ligating (hemostatic) clips are positioned around the structures to be ligated and are then closed by applying pressure on the handles of the applier.
- (3) Clip appliers may be individually-loaded with single clips or multiple clip cartridges.
 - (a) Clips may be nonabsorbable (tantalum, titanium, or stainless steel) or absorbable (polydioxanon).
 - (b) Clip cartridges are color coded.
 - (c) The brand of clips must match the brand of clip applier.
- (4) Several brands of clip appliers and clip removers are available in various sizes and shapes.

Examples: Surgiclip™, Ligaclip™

Figure 70



Information Sheet**10. Basic suctioning/aspirating instruments****a. Frazier suction tube**

- (1) Length is 7" to 9".
- (2) Tubular shaft with 45 degree bend
- (3) Hole at the top of the tube controls the amount of suction.
- (4) Sized 6 to 12 French
- (5) Used to remove fluids from superficial wounds
- (6) Common names: Small suction tip, neuro suction, nasal suction

Figure 71

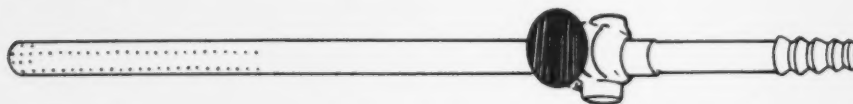


Information Sheet

b. Poole abdominal suction tube

- (1) Length is 8 3/4".
- (2) Straight tubular shaft with a hole at the end.
- (3) Outer sleeve has multiple holes which extend from the tip to 1/4 the length of the sleeve.
- (4) Used to remove fluids from the abdominal cavity where tissue may have a tendency to plug a single-hole suction tip
- (5) Common name: Poole suction

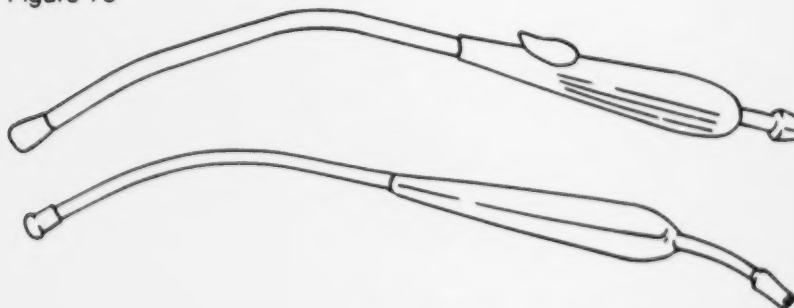
Figure 72



c. Yankauer suction tube

- (1) Length is 11 3/4".
- (2) Curved shaft with an additional slight curve near tip.
- (3) Tip has removable cap with hole on end and four holes around the sides.
- (4) Used to remove fluids from a variety of surgical incisions
- (5) Common names: Plain suction tip, tonsillar suction tip, tonsil suction

Figure 73



Information Sheet

d. Ochsner gall bladder trocar

- (1) Length is 6 1/4".
- (2) Sized 12 to 28 French
- (3) Straight shaft with a sharp cutting edge at the end
- (4) Fits inside a sleeve (cannula)
- (5) Has a "Y" at the top to attach suction tubing or insert a catheter
- (6) Used to cut through tissue for access to fluid or a body cavity
- (7) Common name: Abdominal trocar

Figure 74

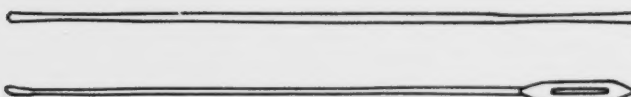


11. Basic dilating/probing instruments

a. Silver probe

- (1) Length is 4 1/2" to 10".
- (2) Narrow, hollow shaft with malleable, rounded tip
- (3) May be double-ended or eyed
- (4) Eye on end may be threaded with suture
- (5) Used to explore the depth of a structure, passage of a fistula, or location of an obstruction
- (6) Common name: Probe

Figure 75



Information Sheet

b. Bakes common duct dilator

- (1) Length is 8 3/4".
- (2) Dilating width is from 3mm to 11mm diameter.
- (3) Used to enlarge the common bile duct
- (4) Common name: Common duct dilator

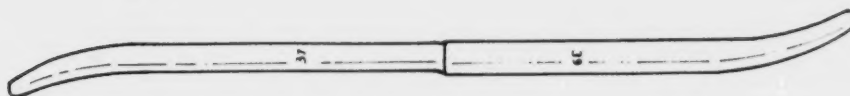
Figure 76



c. Pratt uterine dilator

- (1) Length is 10" to 11 1/2".
- (2) Dilating width is from 13 French to 43 French.
- (3) Double-ended with each end being a different size
- (4) Used to enlarge the orifice of the cervix or explore the cervical canal
- (5) Common name: Uterine dilator

Figure 77

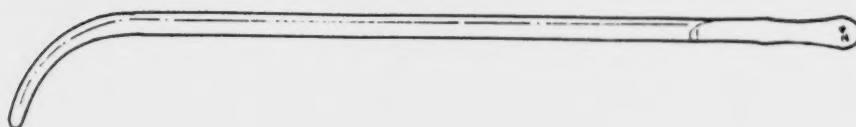


Information Sheet

d. Van Buren urethral sound

- (1) Length is 11".
- (2) Dilating width is from 8 French to 40 French.
- (3) Used to enlarge the orifice of the urethra or explore the urethral canal
- (4) Common name: Urethral dilator

Figure 78



12. Handling and care of surgical instruments

a. Before the surgical procedure

- (1) Know name and use of each surgical instrument.
- (2) Handle instruments gently.
- (3) Lay instruments side-by-side on the instrument table, **never** piled on top of one another.
- (4) Avoid dropping, bouncing, or placing heavy items on finer items.

Example: Fine forceps and scissors should not be covered by heavier instruments like Peans or Ochsners.

- (5) Keep heavy retractors separated from other instruments.
- (6) Handle loose instruments separately to prevent interlocking or crushing.
- (7) Inspect scissors, clamping, and grasping instruments for alignment, imperfections, and working conditions before and after use. Set aside or remove any defective instruments.
 - (a) Blades must be properly set.
 - (b) Scissors must be sharp.

Information Sheet

- (c) Jaws, teeth, and serrations should align exactly.
- (d) Ratchets should close easily, yet hold firmly.

Caution: Instruments which function ineffectively can cause delays in the surgical procedure and may increase the risk of infection and patient injury.

- (8) Close clamps on first ratchet only.
 - (9) Protect sharp blades, edges, and tips so they do not touch anything.
 - (10) Keep ring-handled instruments together with curvatures and angles pointed in the same direction.
- b. During the surgical procedure
- (1) Use instruments only for their designed purposes.
 - (2) Hand surgeon and/or assistant the correct instrument for each task.
 - (3) Pass instruments in a positive and decisive manner.
 - (4) Place or firmly slap each instrument into surgeon's palm so it is ready for immediate use.
 - (a) Hold instrument by the box lock with the tip of the instrument visible. Place the handle directly into the surgeon's waiting hand.
 - (b) If surgeon is on opposite side of table, pass across right hand to right hand, or with your left hand to a left-handed surgeon.
 - (c) If surgeon or assistant is on your side of table and to the right, pass with your left hand; if surgeon or assistant is to your left, pass with your right hand.
 - (d) Sharp and delicate instruments may be placed on a flat surface for the surgeon to pick up or passed in the proper manner depending on the surgeon's preference.
 - (5) Do not waste motion.

Information Sheet

- (6) Watch for hand signals if surgeon uses them to indicate type of instrument desired.

Note: This eliminates unnecessary talking and helps the surgical technologist pass instruments quickly.

- (7) Handle instruments individually.

Note: When several instruments of the same type will be needed in rapid succession, three or four may be picked up at one time; however, they are passed to the surgeon and/or assistant one at a time.

- (8) Select the appropriate instrument for location of operative site.

Example: Short instruments for superficial work, long instruments for deep in a body cavity

- (9) Watch the sterile field for loose instruments and remove them immediately after use to Mayo stand or back table.
- (10) Keep instruments free from gross soil during the surgical procedure by wiping with a sponge moistened with sterile water.
- (11) Keep instruments with lumens patent by irrigating with sterile water.
- (12) Cool instruments before using if they are flash sterilized during the operative procedure.
- (13) Place used instruments not needed again (except cutting, delicate, or powered ones) into a tray or basin during or at end of operation.
- (14) Keep all instruments accessible for final counts.
- (15) **Never** place instruments in normal saline during the case because sodium chloride is corrosive and will damage the instrument.

c. After the surgical procedure

- (1) Disassemble instruments with removable parts to expose all surfaces for cleaning.
- (2) Open all hinged instruments to expose box locks and serrations.
- (3) Flush cold distilled water through hollow instruments to prevent drying of organic debris.
- (4) Separate sharp, semi-sharp, and delicate instruments for special handling.

Information Sheet

- (5) Flatten or straighten malleable instruments such as retractors and probes.
- (6) Begin decontamination of instruments immediately after completion of the surgical procedure.
- (7) Use automated cleaning for the initial decontamination.
- (8) Wear protective attire if manual cleaning is recommended by the manufacturer.
- (9) Follow the four steps of instrument decontamination—pre-rinsing, washing, rinsing, and sterilizing according to the manufacturer's recommendation.
- (10) Use distilled water for cleaning. Hard and soft water both contain minerals which may cause spotting or corroding of instruments.
- (11) Use an enzymatic soak solution on delicate instruments if needed to loosen particles of bone, tissue, and blood.
- (12) Do not soak instruments for prolonged times because that may damage the instrument surfaces.
- (13) Use detergent with a pH as close to neutral as possible; never higher than 8.

Note: A pH above 8 is corrosive.
- (14) Use detergent that is a good wetting agent with low sudsing properties to prevent damage to the instrument.
- (15) Do not use abrasive agents such as wire brushes and steel wool to clean instruments since they will scratch or abrade the instrument finish, thereby predisposing it to rust.

Note: Exact instrument cleaning procedures will vary among institutions. Be familiar with the method utilized at your hospital.

13. Parts of an endoscope

- a. **Viewing sheath or scope** — Round, tube-like, supporting structure that accepts the lighting to be used and any accessories needed; length must be appropriate to reach the desired structure; may be rigid or flexible
 - (1) Rigid scopes (two types)
 - (a) Hollow sheaths that permit viewing in a forward direction such as laryngoscopes

Information Sheet

- (b) Hollow sheaths with an eyepiece and telescopic lens system that permits viewing in a variety of directions such as cystoscopes

Note: Disposable plastic anoscope and otoscope sheaths are available.

- (2) Flexible scopes

- (a) Have a dial adjuster that contours the lensed tip into and around anatomic curvatures
- (b) Permit viewing of all surfaces of the wall of a hollow structure
- (c) Sheaths of these instruments are made of plastic material.

- b. **Light source** — Incandescent light bulb or fiberoptic bundle that makes cavity or organ visible to surgeon

Note: Fiberoptic bundle is attached through a cord to the power source.

- c. **Power source** — Fiberoptic light projector or rheostat that provides electric current for the fiberoptic bundle

- d. **Accessories** — Additional instruments passed through or attached to the sheath to accomplish other diagnostic or therapeutic procedures

- (1) Suction tubing
- (2) Snares
- (3) Biopsy forceps
- (4) Electrosurgical tips
- (5) Sponge carriers
- (6) Operating microscope
- (7) Laser
- (8) Ultrasound
- (9) Cameras
- (10) Video equipment

Information Sheet

14. Handling and care of endoscope

Note: Endoscopes are delicate and expensive instruments and require special care.

- a. Never bend any of the parts. Coil cords loosely when not in use.
- b. Avoid rough handling and jarring.
- c. Do not mix them with other instruments.
- d. Never pile them on top of each other.
- e. Check for dents, scratches, or rough edges as they may cause tissue damage or corrosion of the instrument.
- f. Do not allow the fiberoptic cable to swing free.
- g. Thoroughly and mechanically clean them according to the manufacturers' guidelines.
- h. Terminally sterilize or disinfect them after use.
- i. Clean all parts as soon after use as possible.
- j. Use warm, **never** hot, water.
- k. Use a detergent with a pH as close to neutral as possible; never higher than 8.
- l. Use a pipestem cleaner or small brush to clean inside lumen of all channels.
- m. Remove and clean all stopcocks.
- n. Pay particular attention when cleaning lenses.
 - (1) Clean around lens with a fine toothpick.
 - (2) Do not use any cleaning agent that may contain alcohol which will dissolve the cement around the lens.
 - (3) Use special lens paper on the lens itself.
- o. Rinse thoroughly and dry well.
- p. Use a pipestem cleaner to dry insertion tube.
- q. Use compressed air to dry inside of sheath.

Information Sheet

- r. Thoroughly clean all accessories.
- s. Dry all scopes before storing.

Note: An endoscope processor is available to clean long flexible fiberoptic scopes. Always follow the manufacturer's recommendations when cleaning.

Instrumentation Unit 2-C

Student Supplement 1—Review Proper Names of Basic Surgical Instruments

Name _____ Date _____

Introduction: As operations have become more complicated and intricate, more instruments have been designed to accomplish these procedures in a more effective manner. The surgical technologist must be familiar with the proper name of each instrument to eliminate excess operating time.

Directions: Using the clues given below, complete the crossword puzzle by placing the appropriate name in the spaces provided. When you have completed this task, ask your instructor to check your answers.

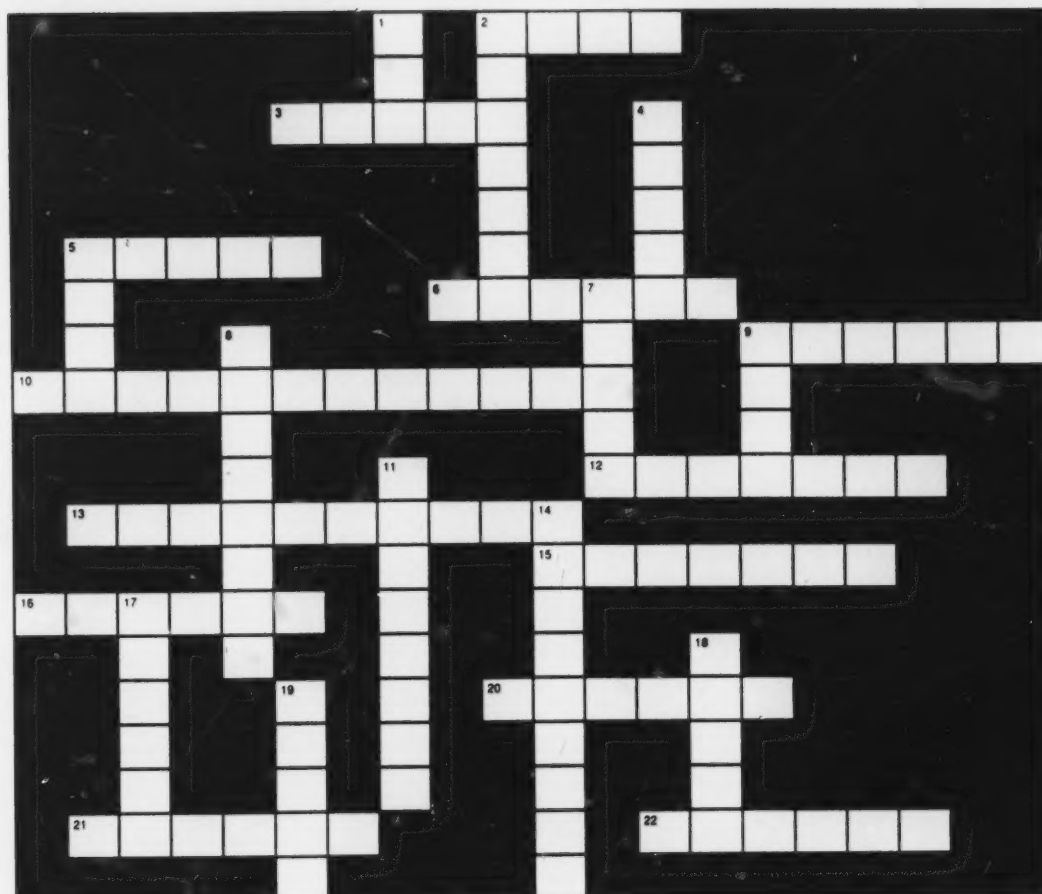
ACROSS CLUES

2. Cutting/dissecting inst. with blunt tips; blades may be straight or curved
3. Dilating inst., double-ended, sized 13F. to 43F., used to dilate cervical orifice
5. Suctioning inst., straight shaft, outer sleeve with multiple holes extending 1/4 length
6. Weighted inst., used for vaginal viewing
9. Probing inst. with narrow, hollow shaft and malleable, rounded tip
10. Suturing inst. designed for anastomosis
12. Clamping inst., jaws may be fully or slightly curved; tips are delicate, horizontal serrations
13. Grasping inst. that will not perforate towels or drapes
15. Grasping inst., tips are rounded with deep, circular interlocking serrations
16. Grasping inst., length 5 1/2", jaw tips have 1x2 teeth, horizontal serrations to box lock
20. Hand-held retractor; tips are rounded with a circular curved blade, used in deep cavities
21. Suturing inst., tips are rounded, usually curved, long shanks, holds heavy needles
22. Clamping inst.; right-angled, 5 1/4" - 7 1/4"

DOWN CLUES

1. Double-ended retractor; blades angled 90°, of unequal sizes
2. Double-ended retractor; three prong rake on one end, blade on other end angled same as rake
4. Suturing inst.; tips are rounded, and narrow, diamond-cut with 4,000 teeth
5. Clamping inst. with heavy tips and heavy serrations, may be straight or curved
7. Grasping inst.; jaws have small interlocking teeth which are traumatic to tissue
8. Suctioning inst. with curved shaft and curve near tip
9. Double-ended retractor; three prong rake on one end, blade angled opposite of rake
11. Grasping inst. with tips that will perforate
14. Suturing inst. with tips that are thin, rounded, and straight; diamond-cut with 3,600 teeth
17. Viewing inst. used for nasal area
18. Retractor whose tips are sharp, pointed, and curve down and out
19. Clamping inst.; right-angled with fine rounded tips, 7 1/2" - 9"

Student Supplement 1



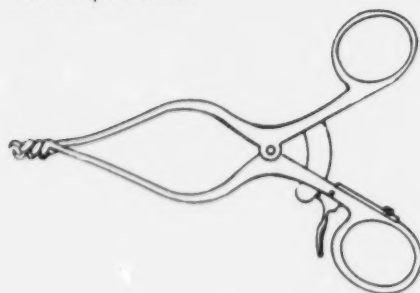
Instrumentation Unit 2-C

Assignment Sheet 1—Identify Basic Surgical Instruments

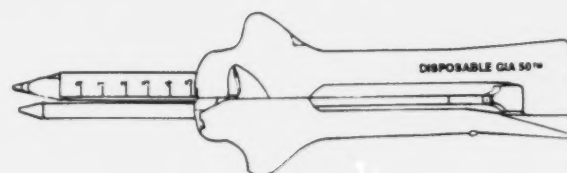
Name _____ Overall Rating _____

Evaluation criteria	Rating
Instruments are correctly identified	_____
Names are correctly spelled	_____

Directions: Identify the following basic surgical instruments and write their names in the blanks provided.



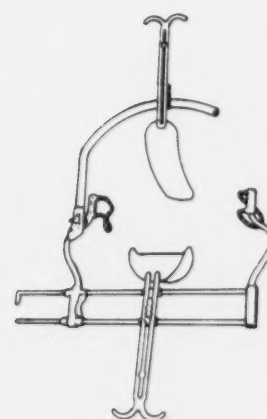
1. _____



2. _____

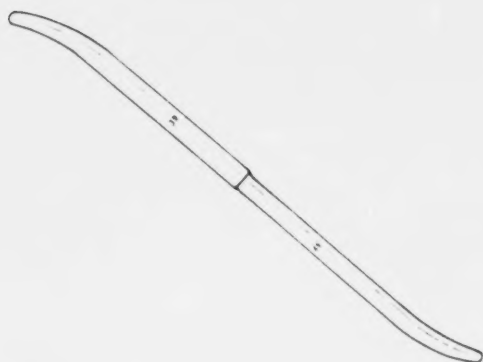


3. _____



4. _____

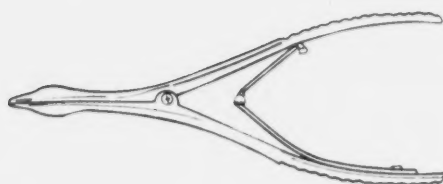
Assignment Sheet 1



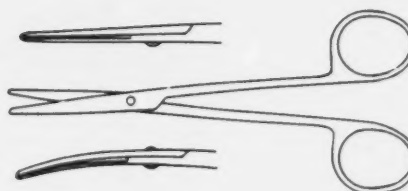
5. _____



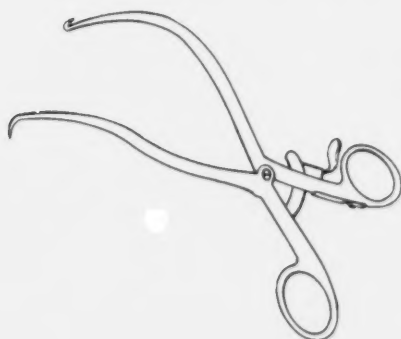
6. _____



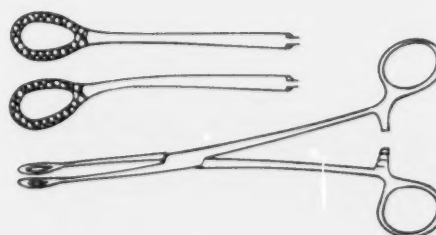
7. _____



8. _____

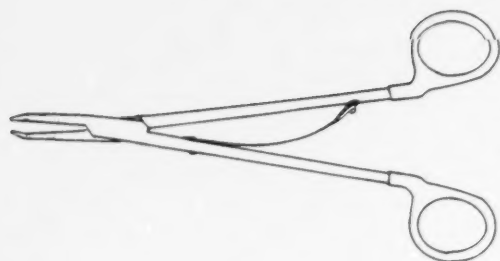


9. _____



10. _____

Assignment Sheet 1



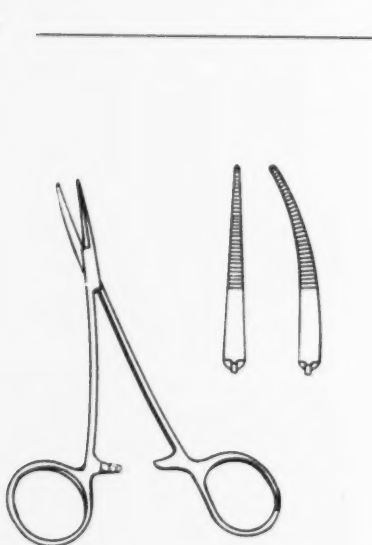
11.



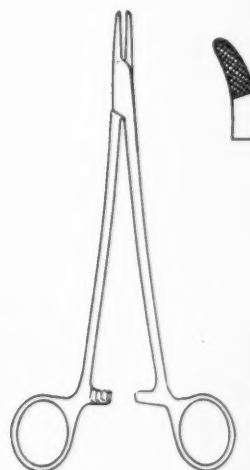
12.



13.



14.



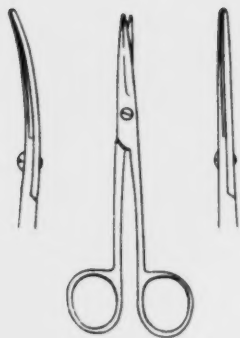
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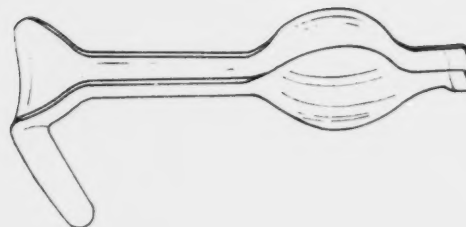
16.



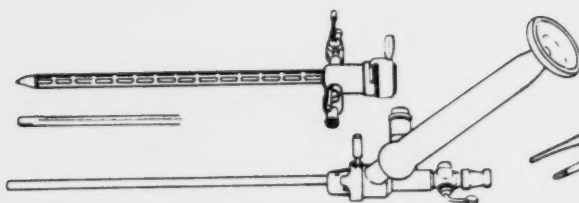
Assignment Sheet 1



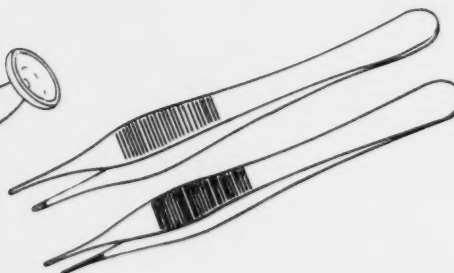
17. _____



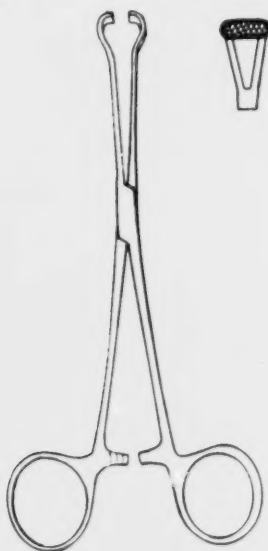
18. _____



19. _____



20. _____

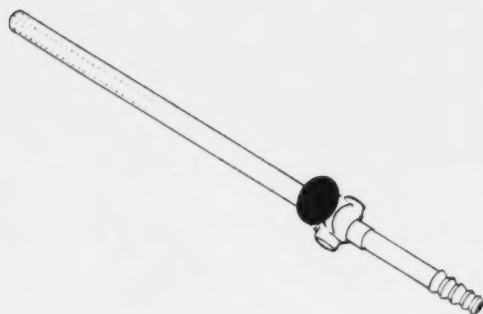


21. _____

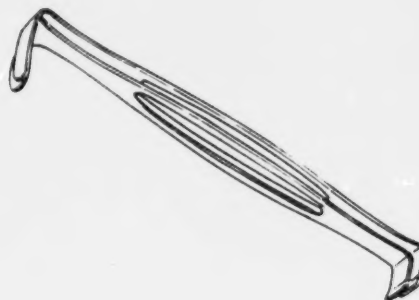


22. _____

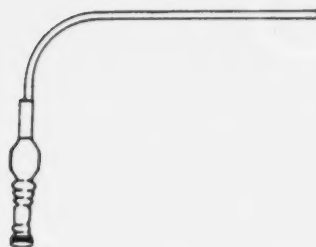
Assignment Sheet 1



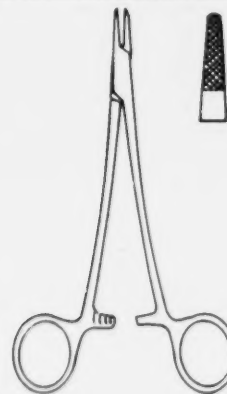
23.



24.



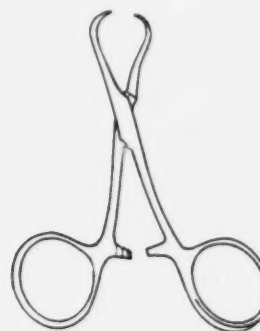
25.



26.

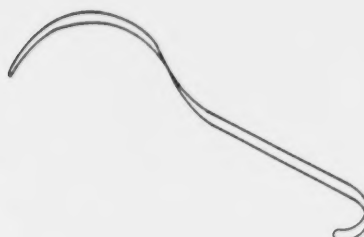


27.



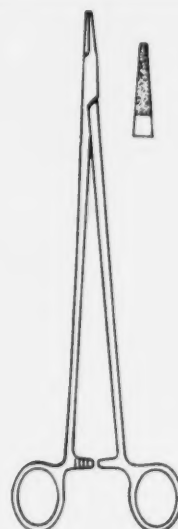
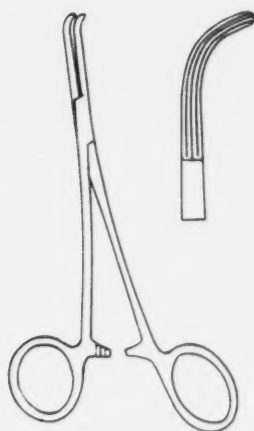
28.

Assignment Sheet 1



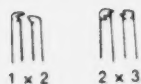
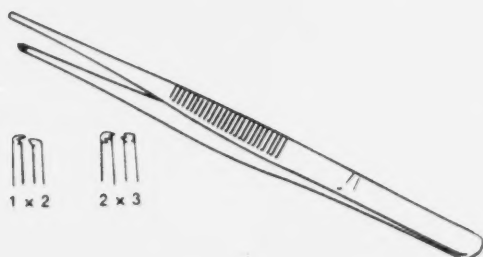
29. _____

30. _____



31. _____

32. _____



1 x 2

2 x 3



33. _____

34. _____

Instrumentation Unit 2-C

Assignment Sheet 2—Classify Basic Surgical Instruments According to Their Functions

Name _____ Overall Rating _____

Evaluation criterion	Rating
Answers are correct	_____

Directions: Classify the basic surgical instruments listed according to their functions by placing the following letters in the appropriate blanks:

CL — Clamping/occluding
 CUT — Cutting/dissecting
 D — Dilating/probing
 G — Grasping/holding
 R — Retracting/exposing
 SUC — Suctioning/aspirating
 SUT — Suturing/stapling
 V — Viewing

- | | |
|-----------------------------------|-------------------------------------|
| _____ 1. Scalpel blade | _____ 11. Senn |
| _____ 2. Atraumatic towel clamp | _____ 12. Crile-Wood needle holder |
| _____ 3. Silver probe | _____ 13. Frazier suction tube |
| _____ 4. Halstead mosquito forcep | _____ 14. U.S.A. |
| _____ 5. Boucheron ear specula | _____ 15. Cushing bayonet tissue |
| _____ 6. Mayo-Hegar needle holder | _____ 16. Ribbon |
| _____ 7. Kelly | _____ 17. Van Buren urethral sounds |
| _____ 8. Fascia stapler | _____ 18. Wire cutters |
| _____ 9. Lahey gall duct | _____ 19. Mayo dissecting scissors |
| _____ 10. Babcock intestinal | _____ 20. Crile hemostatic |

Assignment Sheet 2

- _____ 21. Backhaus towel clamp
- _____ 22. Richardson
- _____ 23. Pean
- _____ 24. Deaver
- _____ 25. Kocher
- _____ 26. Murphy
- _____ 27. Foerster sponge forceps
- _____ 28. Ryder needle holder
- _____ 29. Bakes common duct dilator
- _____ 30. Pratt rectal speculum
- _____ 31. Ochsner gall bladder trocar
- _____ 32. Scalpel handle
- _____ 33. Balfour abdominal
- _____ 34. Gelpi
- _____ 35. Adson tissue
- _____ 36. Allis intestinal
- _____ 37. Cushing vein
- _____ 38. Schnidt tonsil
- _____ 39. Potts-Smith
- _____ 40. Metzenbaum

Instrumentation
Unit 2-C

**Job Sheet 1—Load and Unload a Scalpel Blade
on a Scalpel Handle**

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Disposed of blade correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your equipment ready.

A. Equipment and materials

Protective clothing, including eyewear
Scalpel handle
Scalpel blade
Needle holder
Sharp container

B. Procedure

- ☐ 1. Put on protective clothing, including eyewear.
- ☐ 2. Place blade on handle.
 - ☐ a. Hold knife handle in one hand with tip slightly downward.
 - ☐ b. Turn knife handle until slots at tip are uppermost.
 - ☐ c. Grasp blade at its widest point with the needle holder.
 - ☐ d. Slide blade onto slot in knife handle.
 - ☐ e. Pop securely in place.

Job Sheet 1

Figure 1



- ☐ 3. Remove blade from handle.
 - ☐ a. Hold handle and blade in one hand.
 - ☐ b. Holding handle downward, grasp lowermost portion of blade with needle holder and elevate to release from slot.
 - ☐ c. Grasp blade securely with needle holder and slide from the handle.
 - ☐ d. Dispose of used blade in contaminated sharp container.

Caution: Blades should always be placed and removed with a needle holder to prevent cuts. Care should be taken to avoid flipping the blade.

Evaluator's comments: _____

Instrumentation Unit 2-C

Job Sheet 2—Pass Various Instruments to Another Person (Scalpel, Clamp, Scissors, Tissue Forceps, and Retractor)

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Passed instruments firmly	_____
Passed instruments ready to use	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Equipment and materials

Protective clothing, including eyewear
 Scalpel handle with attached blade
 Curved hemostatic forceps (clamps)
 Dissecting scissors
 Tissue forceps
 Hand-held retractor

B. Procedure

Note: All instruments should be passed in a firm, decisive manner. A "snap" into the surgeon's palm is helpful. Remember ALL instruments are passed in functional position.

- ☐ 1. Put on protective clothing, including eyewear.
- ☐ 2. Pass scalpel.
 - ☐ a. Grasp scalpel on the finger grips with hand above the cutting edge.

Job Sheet 2

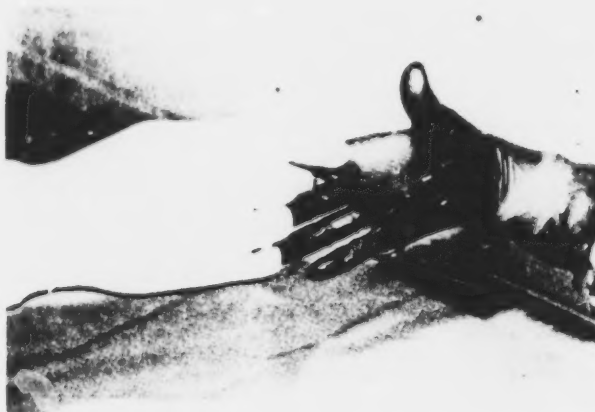
- ☐ b. Pass to surgeon handle first with blade down.

Figure 1



- ☐ 3. Pass clamp.
- ☐ a. Hold the clamp by the joint with the clamp closed allowing surgeon full use of finger rings.

Figure 2



Job Sheet 2

- ☐ b. If clamp is curved, the curve of the instrument goes with the curve of the surgeon's palm.

Figure 3



- ☐ 4. Pass scissors.
 - ☐ a. Grasp scissors at hinge with handles closed.
 - ☐ b. Pass firmly into surgeon's hand allowing full use of finger rings.

Note: If curved, the curvature of the instrument goes with the curve of the surgeon's palm.

Figure 4



Job Sheet 2

- ☐ 5. Pass tissue forceps using one of the following methods:
- ☐ a. Grasp by uppermost end, and pass allowing surgeon full use of thumb and finger grips.

Figure 5



- ☐ b. Or grasp by tips, and pass allowing surgeon full use of thumb and finger grips.

Figure 6



Job Sheet 2

- ☐ 6. Pass retractor.
 - ☐ a. Grasp in middle of retracting instrument.
 - ☐ b. Pass with blade downward for placement in the incision.

Note: Heavy retractors are passed firmly, yet gently.

Figure 7



Evaluator's comments: _____

Instrumentation Unit 2-C

Job Sheet 3—Assemble a Balfour Abdominal Retractor

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____
Closed screws	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria.

A. Equipment and materials

Balfour abdominal retractor
Balfour blades to fit

B. Procedure

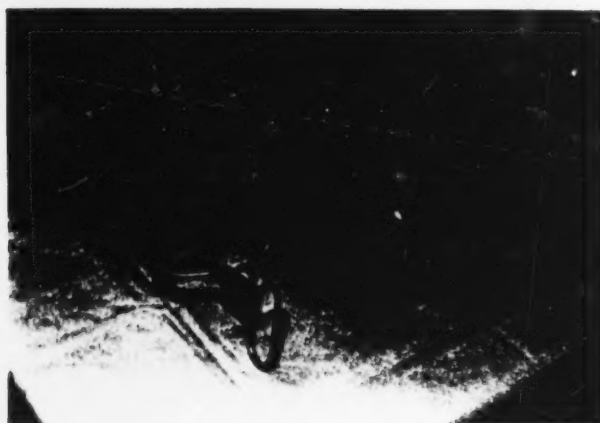
- ☐ 1. Grasp Balfour with lateral blades downward, away from body.
- ☐ 2. Open screws on cross shank.
- ☐ 3. Place adjustable screw-lock in center of cross shank.
- ☐ 4. Slide second lateral arm with blade onto cross shank, making sure that it fits properly.

Job Sheet 3

- ☐ 5. Close screws.

Note: Center blade can be placed and tightened at the field. Lateral blades may be removable; if so, they must be attached.

Figure 1



Evaluator's comments: _____

Sutures and Needles

Unit 3-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to distinguish between types of suture materials and types of needles and discuss and demonstrate correct preparation and handling of sutures and needles. The student should demonstrate these competencies by completing the job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to sutures and needles with their correct definitions.
2. List functions of suture material.
3. Match characteristics of suture material with the correct descriptions.
4. Distinguish among the major types of suture materials.
5. Classify suture material according to types.
6. Select true statements concerning suture selection.
7. Differentiate between suture techniques.
8. Identify types of surgical stitches.
9. Complete statements concerning characteristics of retention sutures.
10. Identify information on suture packaging.
11. Select true statements concerning suture preparation.
12. Complete statements concerning guidelines for handling suture.
13. Select true statements concerning characteristics of surgical staples and ligating clips.
14. Match miscellaneous products used for wound closure or hemostasis with the correct descriptions.

Objective Sheet

15. Identify the parts of a surgical needle.
16. Identify surgical needles according to their classifications.
17. Select true statements concerning needle selection.
18. Select true statements concerning the handling of surgical needles.
19. Transfer suture material to sterile field. (Job Sheet 1)
20. Straighten sutures. (Job Sheet 2)
21. Cut sutures in 1/2, 1/3, and 1/4 lengths. (Job Sheet 3)
22. Load and pass a needle holder with swaged needle for right- and left-handed surgeons. (Job Sheet 4)
23. Load, thread, and pass a needle holder with eyed needle for right- and left-handed surgeons. (Job Sheet 5)
24. Pass ties. (Job Sheet 6)
25. Tag and cut sutures. (Job Sheet 7)

Sutures and Needles Unit 3-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Classifying Suture Material According to Type (Objective 5)
TM 2—Suture Techniques (Objective 7)
TM 3—Common Surgical Stitches (Objective 8)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the student supplements.
12. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Suggested Activities

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce this unit, make a display of the various types of sutures and needles available.
2. Invite a guest speaker from one of the suture manufacturing companies to demonstrate the use of suture, needles, and stapling devices. This is especially useful with stapling devices. Students are able to actually handle the equipment and load the staple cartridges. Have the speaker bring the most recent products and devices that students may see being used in surgery.
3. Have two suture boxes and packets available from different suture companies when discussing identification of suture material. Point out the differences in labeling information between companies such as how one has expiration date on box and the other on the suture packet.
4. Have a surgeon's preference card or computer data sheet available to illustrate how sutures appear on the card.
5. Ask students to write a surgical case summary. Have them identify suture type and needle used in the different tissues.
6. Obtain the model "Surgical Sally" to further demonstrate common surgical stitches. Refer to address in Suggested Supplemental Resources.

Suggested Activities

7. Have students research current periodicals on "Needle Stick Injuries." Students can give written or oral reports on their findings. This will emphasize careful handling of sutures and needles.
8. Have students practice threading a French-eyed needle even though they are not commonly used.
9. Demonstrate to the students how to load and pass a "tie on a passer."
10. Contact local suture and needle manufacturers for videos and other supplementary information on their products.

Resources Used in Developing This Unit

1. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
2. Bennett, R. G. "Selection of Wound Closure Materials." *Journal of the American Academy. Dermatol* 18:4, 1988.
3. Corder, Jacqueline W. *Logic of Operating Room Nursing*, 3rd ed. Oradell, NJ: Medical Economics Company Inc, 1984.
4. Davis and Geck. *Perspective on Sutures*. Pearl River, NY: American Cyanamid Co., 1978.
5. Ethicon, Inc. *Wound Closure Manual*. Sommerville, NJ: Ethicon Inc./Johnson & Johnson Co., 1988.
6. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Sanders Company, 1986.
7. Kirk, R. M. *Basic Surgical Techniques*, 3rd ed. New York: Churchill Livingstone, 1989.
8. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.

Suggested Activities

Suggested Supplemental Resources

1. Suture/Needle Manufacturers (write or call for more information)

- a. Davis & Geck
Literature Department
American Cyanamid Company
Danbury, CT 06810
800-225-5341
- b. Ethicon, Inc.
4545 Creek Road
Cincinnati, OH 45242-2839
800-766-9534

2. "Surgical Sally" model available from:

NASCO Health Care Educational Materials
901 Janesville Avenue
Ft. Atkinson, WI 53538-0901
800-558-9595

3. Videotapes/Films

- a. *Sutures, Needles, and Skin Closure Material*, 1215

Karol Media
625 From Road
Paramus, NJ 07652
- b. *3-M Precise Skin Stapling*, 10 min. 1986.
- c. *A Cleaner Closure*, 14 min.
- d. *Steri-Strip Skin Closures: The Better Way to Skin Closure*, 13 min. 1986.

b-d are available from:

3-M Health Care
c/o Computer Chrome, Inc.
2610 University Avenue
St. Paul, MN 55114
800-328-4827, x 1205

Suggested Activities

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

- Yes—Can perform job with no additional training.
- No—Is unable to perform job satisfactorily.

Sutures and Needles Unit 3-C

Answers to Written Test

1. a. 9 d. 11 g. 12 j. 4
 b. 16 e. 5 h. 3 k. 15
 c. 2 f. 14 i. 20 l. 22

2. Any two of the following:
 - a. Hold tissues together until healing takes place
 - b. Provide strength to wound after incision is closed
 - c. Provide tissue approximation with minimal scarring
 - d. Provide a method of hemostasis
 - e. Tie off tissue to be removed or ligated

3. a. 8 d. 3 g. 7 j. 14
 b. 9 e. 12 h. 2 k. 4
 c. 13 f. 10 i. 11

4. b

5. a. 4 d. 1 g. 4 j. 4
 b. 3 e. 3 h. 2 k. 1
 c. 2 f. 3 i. 4 l. 2

6. a. F d. T g. F
 b. T e. F h. F
 c. T f. T i. T

7. a, d, g, h

8. a. Horizontal mattress
 b. Subcuticular
 c. Purse string
 d. Over and over
 e. Figure-of-eight
 f. Vertical mattress

9. a. Heavy
 b. Out
 c. "Bumpers"
 d. Primary
 e. Decrease
 f. Decrease

Answers to Written Test

10.
 - a. Category of surgical use
 - b. Size of suture (gauge)
 - c. Trade name of suture
 - d. Suture characteristics
 - e. Generic name of suture
 - f. Length of suture strand
 - g. Needle description and identification number
 - h. Illustration of needle
 - i. Name of manufacturer
11.
 - a. F
 - b. T
 - c. F
 - d. F
 - e. T
12.
 - a. 1/4
 - b. Grasp free ends and pull gently
 - c. 54", 60"
 - d. Are
 - e. Suture
 - f. Rinsed
 - g. Dry
 - h. 4"
13.
 - a. F
 - b. T
 - c. F
 - d. F
14.
 - a. 4
 - b. 1
 - c. 3
 - d. 2
15.
 - a. Point
 - b. Shaft (body)
 - c. Eye
16.
 - a.
 - (1) 1/2 circle
 - (2) 1/4 circle
 - (3) 3/8 circle
 - (4) Straight

742

Answers to Written Test

- | | | | | | |
|----|-----|----------------------------------|--|--|--|
| b. | (1) | Conventional cutting | | | |
| | (2) | Side cutting | | | |
| | (3) | Blunt | | | |
| | (4) | Taper | | | |
| | | | | | |
| c. | (1) | Trapezoid | | | |
| | (2) | Round | | | |
| | | | | | |
| d. | (1) | French eye (spring or split eye) | | | |
| | (2) | Oblong closed eye | | | |
| | (3) | Eyeless (swaged)—Single armed | | | |
-
- | | | | | | | | | |
|-----|----|---|----|---|----|---|----|---|
| 17. | a. | T | d. | F | g. | T | j. | T |
| | b. | F | e. | F | h. | F | | |
| | c. | F | f. | T | i. | F | | |
-
- | | | | | | | | | |
|-----|----|---|----|---|--|--|--|--|
| 18. | a. | T | d. | T | | | | |
| | b. | F | e. | F | | | | |
| | c. | T | f. | T | | | | |

Sutures and Needles Unit 3-C

Written Test

Name _____

Score _____

1. Match terms on the right with the correct definitions.

- | | | |
|----------|---|----------------------|
| _____ a. | Refers to any tissue that is easily torn | 1. Atraumatic |
| _____ b. | Material used to approximate tissue or tie off blood vessels | 2. Approximation |
| _____ c. | Bringing together two sides or edges | 3. Bleeder |
| _____ d. | Causing little or no tissue reaction | 4. Buried suture |
| _____ e. | Chemicals used in the treatment of catgut that cause it to resist absorption for a longer period of time than plain gut | 5. Chromic salts |
| _____ f. | A tube, plastic disc, or other device from which ligating suture material is unwound as blood vessels are tied | 6. Continuous tie |
| _____ g. | Undesirable deformation of a strand of suture | 7. Enzyme |
| _____ h. | Severed blood vessel | 8. Free tie |
| _____ i. | Suture strand attached to a clamp generally used to ligate in deep areas with minimal exposure | 9. Friable |
| _____ j. | Any stitch placed and tied so that it remains completely under the skin surface | 10. Hemostasis |
| _____ k. | Suture strand attached to a needle used to ligate structures | 11. Inert |
| _____ l. | Capillary action when a suture acts as a wick to move tissue fluid and spread infection | 12. Kink |
| | | 13. Ligate |
| | | 14. Ligating reel |
| | | 15. Stick tie |
| | | 16. Suture |
| | | 17. Suture routine |
| | | 18. Swaged |
| | | 19. Tie |
| | | 20. Tie-on-passer |
| | | 21. Traction suture |
| | | 22. Wicking action |
| | | 23. Wound disruption |

Written Test

2. List two functions of suture material.

a. _____

b. _____

3. Match characteristics of suture material on the right with the correct descriptions.

- | | | |
|----------|---|--------------------------|
| _____ a. | Ability to return to former condition | 1. Allergic reaction |
| _____ b. | Strand consisting of a single thread | 2. Capillarity |
| _____ c. | Amount of tension or pull, expressed in pounds, that a strand of suture will withstand before it breaks | 3. Elasticity |
| _____ d. | Ability to be stretched or expanded | 4. Gauge |
| _____ e. | The expected length of time in which absorbable sutures will be in place before being digested by tissue enzymes | 5. Infection potential |
| _____ f. | Strand made of more than one thread held together by twisting or braiding | 6. Inflammation reaction |
| _____ g. | Force necessary to cause a given type of knot to slip | 7. Knot strength |
| _____ h. | Allowing tissue fluids to move along the strand | 8. Memory |
| _____ i. | Ability to bend freely and repeatedly without breaking | 9. Monofilament |
| _____ j. | Ease at which suture slips through tissue | 10. Multifilament |
| _____ k. | Distance through the center of the suture in millimeters, expressed in USP sizes with zeroes | 11. Pliability |
| | | 12. Rate of absorption |
| | | 13. Tensile strength |
| | | 14. Tissue drag |

Written Test

4. Distinguish among the major types of suture materials by placing an "X" next to the description of nonabsorbable suture material.
- _____ a. Suture made of materials that are produced by or that exist in nature
 - _____ b. Suture that effectively resists enzymatic digestion in living tissue
 - _____ c. Suture that is capable of being absorbed by living mammalian tissue
 - _____ d. Suture produced artificially from chemicals
5. Classify the following suture materials according to types listed on the right.
- | | |
|-------------------------------|-----------------------------------|
| _____ a. Surgilon® | 1. Absorbable natural suture |
| _____ b. Surgical steel | 2. Absorbable synthetic suture |
| _____ c. Vicryl® | 3. Nonabsorbable natural suture |
| _____ d. Surgical gut—chromic | 4. Nonabsorbable synthetic suture |
| _____ e. Surgical silk | |
| _____ f. Surgical cotton | |
| _____ g. Polydek® | |
| _____ h. Polyglycolic acid | |
| _____ i. Polypropylene | |
| _____ j. Dacron® | |
| _____ k. Surgical gut—plain | |
| _____ l. Polydioxanone | |
6. Select true statements concerning suture selection by placing a "T" or "F" next to the true or false statements.
- _____ a. Suture selection is based solely on the biological properties of the suture material.
 - _____ b. The material must be inert and should not encourage bacterial growth.
 - _____ c. Knots must hold securely without fraying or slipping.

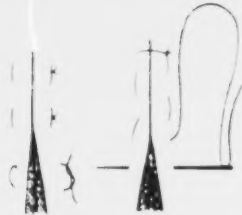
Written Test

- _____d. The material must be sterile.
 - _____e. The material should shrink in tissue fluids to eliminate dead space.
 - _____f. The material must be nonelectrolytic, noncapillary, nonallergenic, and noncarcinogenic.
 - _____g. The absorbability time of the material must be less than the average healing time of the tissue into which it will be placed.
 - _____h. The suture used must be as large in diameter as possible.
 - _____i. If absorbable, the strand must not act as a foreign body in the wound but should be "walled" off and incorporated by the body.
7. Differentiate between suture techniques by placing an "X" next to the characteristics of interrupted suturing.
- _____a. Individual sutures may be removed as healing progresses or if a single stitch becomes inflamed or infected.
 - _____b. If it breaks, the entire line will disrupt.
 - _____c. May be rapidly placed
 - _____d. If a stitch breaks, the remainder of the wound will stay intact.
 - _____e. Consists of a single strand of suture material, passed back and forth between the wound edges, and tied only on each end of the wound
 - _____f. Lends itself to wicking action
 - _____g. Consists of individually placed stitches with each being tied and cut as an independent unit
 - _____h. Is more time consuming to place because each suture must be individually tied and cut

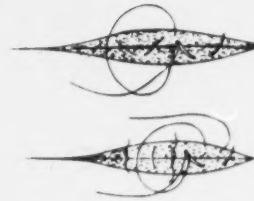
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Written Test

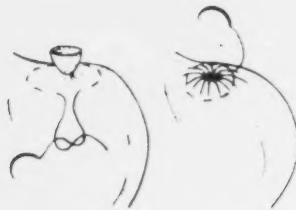
8. Identify the following types of surgical stitches.



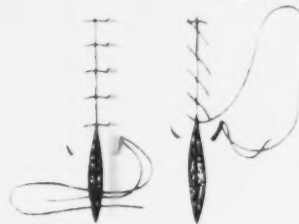
a. _____



b. _____



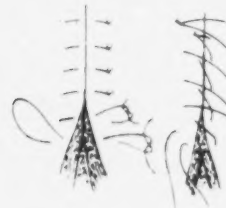
c. _____



d. _____



e. _____



f. _____

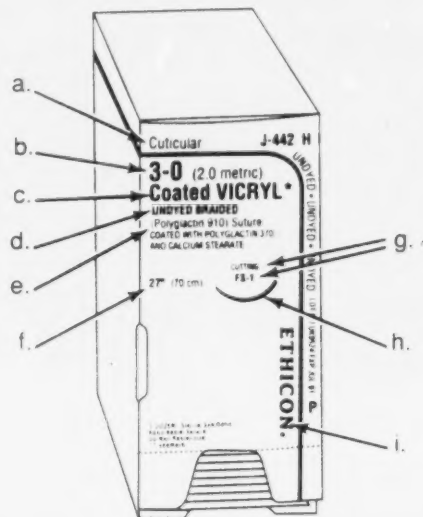
9. Complete the following statements concerning characteristics of retention sutures by circling the correct answers.

- Consist of (light, heavy) nonabsorbable sutures
- Are placed through all or most of the tissue layers a distance (out, in) from the primary suture line
- ("Bumpers", "Pads") are placed at the insertion site to protect the skin from this suture.
- Are used to reinforce the (primary, secondary) sutures
- (Increase, Decrease) strain on the incision
- (Increase, Decrease) dead space

Written Test

10. Identify the information marked on the following suture packaging.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____
- f. _____
- g. _____
- h. _____
- i. _____



11. Select true statements concerning suture preparation by placing a "T" or "F" next to the true or false statements.

- _____ a. Suture materials are very inexpensive; therefore, open as much as you want. That way you won't have to add any later.
- _____ b. The outer peel-pack wrapper is nonsterile and is opened by the circulator.
- _____ c. The inner pack is considered nonsterile and is handled only by the circulator.
- _____ d. There is only one acceptable method for transferring sterile suture packs to the field.
- _____ e. The scrub person reads the label on the primary (inner) packet before opening.

12. Complete the following statements concerning guidelines for handling suture by circling the correct answers.

- a. Place the needle holder on the flattened surface of the needle at least (1/4, 1/2) the distance from the swage or eyed portion.
- b. If the suture requires straightening, (run your gloved hand across the strand, grasp free ends and pull gently).

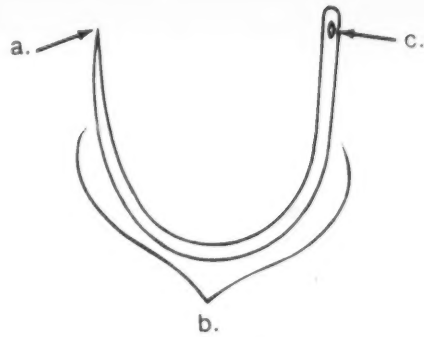
Written Test

- c. Standard lengths of suture are (45", 54") for absorbable and (30", 60") for nonabsorbable.
 - d. Pre-cut lengths of suture (are, are not) available.
 - e. Cut suture only with (suture, Mayo) scissors.
 - f. Surgical gut and collagen may be (rinsed, soaked) prior to use if preferred by surgeon.
 - g. Silk suture should be kept (wet, dry).
 - h. When threading needle, about (4", 10") of the suture strand should be pulled through the eye to prevent un-threading.
13. Select true statements concerning characteristics of surgical staples and ligating (hemostatic) clips by placing a "T" or "F" next to the true or false statements.
- _____ a. Staples and clips are only available nonabsorbable.
 - _____ b. Staples and clips are available as color coded, disposable cartridges or preloaded into disposable instruments.
 - _____ c. Staples are commonly used to occlude (ligate) vessels.
 - _____ d. Staples and clips increase operative time and can result in more inflammation.
14. Match miscellaneous products used for wound closure or hemostasis on the right with the correct descriptions.
- | | |
|---|-----------------------|
| _____ a. $\frac{1}{8}$ " white woven cotton ligature frequently used to isolate and suspend small structures in pediatric and cardiovascular procedures | 1. Bone wax |
| _____ b. Sterile preparation rubbed into bleeding points on surface of bone for hemostasis | 2. Skin closure tapes |
| _____ c. Available in stainless steel, polyester fiber, polypropylene, or polyglactin acid mesh used to reinforce or bridge tissue deficiencies in order to gain maximum repair | 3. Surgical mesh |
| _____ d. Long, narrow, sterile strips of tape with adhesive backing used to approximate skin edges | 4. Umbilical tape |

Written Test

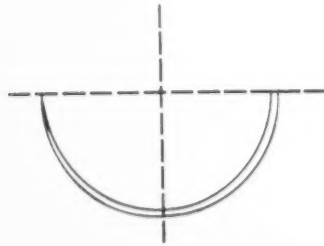
15. Identify the parts of a surgical needle.

- a. _____
- b. _____
- c. _____

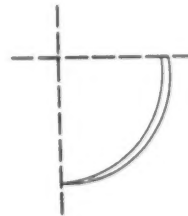


16. Identify the following surgical needles according to their classifications.

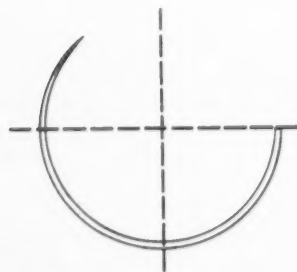
a. According to overall shape



(1) _____



(2) _____



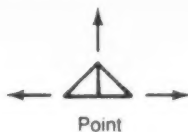
(3) _____



(4) _____

Written Test

b. According to point



(1) _____



(3) _____



(2) _____



(4) _____

c. According to shaft



(1) _____



(2) _____

d. According to eye



(1) _____



(2) _____



(3) _____

17. Select true statements concerning needle selection by placing a "T" or "F" next to the true or false statements.

- _____ a. Needle selection is dependent upon the tissue being sutured and the depth at which the surgeon is working.
- _____ b. Generally the deeper the wound, the less the curvature.
- _____ c. Straight needles are generally used only on the intestine.
- _____ d. Curved needles are very difficult to place so they are not used very often.
- _____ e. Medium needles are used on ophthalmic tissue, vessels, and the intestines.

Written Test

- ☐ f. Heavy needles are used for gynecological procedures and muscles.
 - ☐ g. Cutting points are used on tissues that are difficult to penetrate such as skin, tendons, and tough tissues of the eye.
 - ☐ h. Blunt point needles are used on soft, delicate tissues such as the intestine and peritoneum.
 - ☐ i. Taper point needles are used for suturing friable tissue such as the liver and kidney.
 - ☐ j. Needles with cutting shafts are used for tough, heavy tissues.
18. Select true statements concerning the handling of surgical needles by placing a "T" or "F" next to the true or false statements.
- ☐ a. Always protect needle sharpness.
 - ☐ b. If needle defects or burrs are noted, sharpen the needle.
 - ☐ c. During the case, pass needles to the surgeon on an exchange basis—one needle is returned before another is passed.
 - ☐ d. If needle breaks, all pieces must be accounted for.
 - ☐ e. Used needles should be inserted through or into the original suture packet for safe keeping and counting.
 - ☐ f. Dispose of needles according to hospital policies and procedures.

**Sutures and Needles
Unit 3-C**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Transfer Suture Material to Sterile Field Rating _____

Comments: _____

Job Sheet 2—Straighten Sutures Rating _____

Comments: _____

Job Sheet 3—Cut Sutures in $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ Lengths Rating _____

Comments: _____

Job Sheet 4—Load and Pass a Needle Holder With
Swaged Needle for Right- and Left-Handed Surgeons Rating _____

Comments: _____

Job Sheet 5—Load, Thread, and Pass a Needle Holder With
Eyed Needle for Right- and Left-Handed Surgeons Rating _____

Comments: _____

Job Sheet 6—Pass Ties Rating _____

Comments: _____

Unit Evaluation Form

Job Sheet 7—Tag and Cut Sutures

Rating _____

Comments: _____

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____

Date _____

Student Signature _____

Date _____

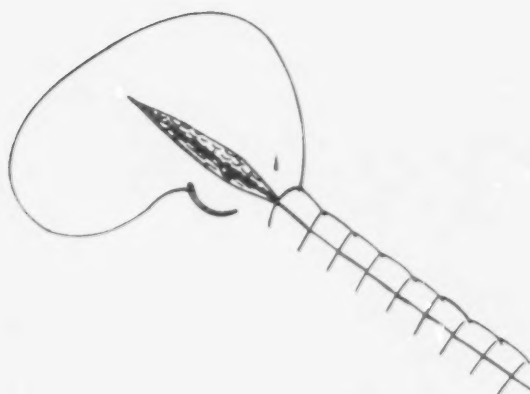
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*Permission to duplicate this form is granted.

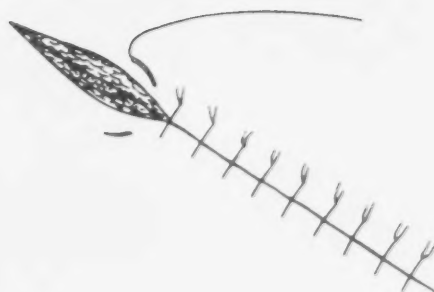
Classifying Suture Material According to Type

	NATURAL	SYNTHETIC
ABSORBABLE	Surgical Gut Collagen Fast Absorbing Gut	Polyglactin 910 Polyglycolic Acid Polydioxanone Polyglyconate
NON-ABSORBABLE	Silk Cotton Linen Steel	Nylon Polyester Fiber Polypropylene Polybutester Polyethylene

Suture Techniques



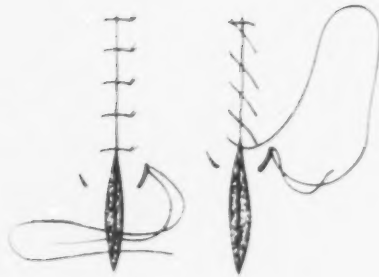
Continuous



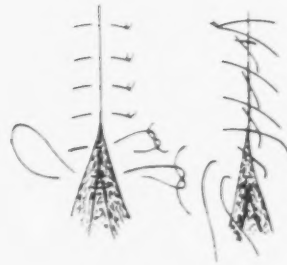
Interrupted

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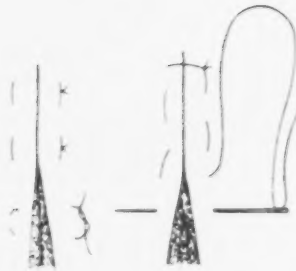
Common Surgical Stitches



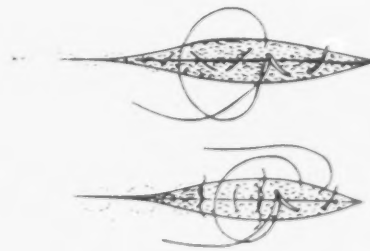
Over and Over



Vertical Mattress



Horizontal Mattress



Subcuticular



Purse String



Figure-of-Eight

753

Sutures and Needles Unit 3-C

Information Sheet

1. Terms and definitions

- a. **Atraumatic** — Causing minimal tissue trauma; refers to the suture-needle combination when the suture is swaged into the needle
- b. **Approximation** — Bringing together two sides or edges
- c. **Bleeder** — Severed blood vessel
- d. **Buried suture** — Any stitch placed and tied so that it remains completely under the skin surface
- e. **Chromic salts** — Chemicals used in the treatment of catgut that cause it to resist absorption for a longer period of time than plain gut
- f. **Enzyme** — Complex substance within tissue cells which may break down and digest surgical gut
- g. **Friable** — Refers to any tissue that is easily torn
- h. **Hemostasis** — Stopping blood flow from a vessel
- i. **Inert** — Causing little or no tissue reaction
- j. **Kink** — Undesirable deformation of a strand of suture
- k. **Ligate** — To tie a structure, such as a vessel
- l. **Ligating reel** — A tube, plastic disc, or other device from which ligating suture material is unwound as blood vessels are tied
- m. **Suture** — Material used to approximate tissue or tie off blood vessels
- n. **Suture routine** — The surgeon's usual preference in suture material and sizes
- o. **Swaged** — Indicates that the suture is attached to the inside of the head of the needle by the manufacturer; eyeless needle

Information Sheet

- p. **Tie (ligature)** — Strand of suture material used for tying a blood vessel or other structure to constrict or bind it
 - (1) **Continuous tie** — Long strand of suture unwound from a reel or other device
 - (2) **Free tie (freehand tie)** — Single strand of suture placed in surgeon's hand to tie individual structures
 - (3) **Stick tie** — Suture strand attached to a needle used to ligate structures
 - (4) **Tie-on-passer** — Suture strand attached to a clamp generally used to ligate in deep areas with minimal exposure
- q. **Traction suture** — Suture strand (usually nonabsorbable) placed around a structure for retraction to the side of the operative field
- r. **Wicking action** — Capillary action when a suture acts as a wick to move tissue fluid and spread infection
- s. **Wound disruption** — Separation of wound edges to some extent

2. Functions of sutures

- a. Hold tissues together until healing takes place
- b. Provide strength to wound after incision is closed
- c. Provide tissue approximation with minimal scarring
- d. Provide a method of hemostasis
- e. Tie off tissue to be removed or ligated

3. Characteristics of suture material

Note: Suture material may be specially treated by the manufacturer to improve many of its characteristics.

- a. Physical characteristics
 - (1) Physical configuration
 - (a) **Monofilament** — Strand consisting of a single thread
 - (b) **Multifilament** — Strand made of more than one thread held together by twisting or braiding

Information Sheet

- (2) **Gauge (diameter size)** — Distance through the center of the suture in millimeters, expressed in USP sizes with zeroes; the smaller the diameter, the more zeroes

Example: 4-0 (0000) is smaller than 3-0 (000).

Note: USP stands for the United States Pharmacopeia, an official compendium which sets various drug standards.

- (3) **Tensile strength** — Amount of tension or pull, expressed in pounds, that a strand of suture will withstand before it breaks
- (4) **Elasticity** — Ability to be stretched or expanded
- (5) **Memory** — Ability to return to former condition
- (6) **Capillarity** — Allowing tissue fluids to move along the strand

Note: If infection is present, it can be drawn into the wound through the suture strand which acts as a wick.

b. Handling characteristics

- (1) **Pliability** — Ability to bend freely and repeatedly without breaking
- (2) **Tissue drag** — Ease at which suture slips through tissue
- (3) **Knot strength** — Force necessary to cause a given type of knot to slip

c. Tissue reaction characteristics

- (1) **Inflammatory reaction** — Expected suture reaction when inflammation is present
- (2) **Rate of absorption** — The expected length of time in which absorbable sutures will be in place **before** being digested by tissue enzymes
- (3) **Infection potential** — Expected suture reaction when infection is present
- (4) **Allergic reaction** — Possible reaction if patient is allergic to suture material

Information Sheet

4. Major types of suture materials

- a. **Absorbable** — Suture that is capable of being absorbed by living mammalian tissue
- b. **Nonabsorbable** — Suture that effectively resists enzymatic digestion in living tissue
- c. **Natural** — Suture made of materials that are produced by or that exist in nature
- d. **Synthetic** — Suture produced artificially from chemicals

5. Classifying suture materials according to type

- a. Absorbable natural sutures
 - (1) Surgical gut — Made from the submucosa of sheep intestine or serosa of beef intestine; may be plain or chromic
 - (2) Collagen — Made from flexor tendon of beef; may be plain or chromic
 - (3) Fast absorbing gut — Specially treated to speed absorption
- b. Absorbable synthetic sutures
 - (1) Polyglactin 910 — Vicryl® and Monocryl®
 - (2) Polyglycolic acid — Dexon®
 - (3) Polydioxanone — PDS®
 - (4) Polyglyconate — Maxon®
- c. Nonabsorbable natural sutures
 - (1) Surgical silk
 - (2) Surgical cotton
 - (3) Linen
 - (4) Surgical steel

Information Sheet

d. Nonabsorbable synthetic sutures

(1) Surgical nylon

- Dermalon®
- Ethilon®
- Nurolon®
- Surgilon®

(2) Surgical polyester fiber

- Dacron®
- Ethibond®
- Mersilene®
- Polydek®
- Tevdek®

(3) Polypropylene

- Prolene®
- Surgilene®

(4) Polybutester — Novafil®

(5) Polyethylene — Dermalene®

Information Sheet

Table 1—Classifying Suture Material According to Type

	NATURAL	SYNTHETIC
ABSORBABLE	Surgical Gut Collagen Fast Absorbing Gut	Polyglactin 910 Polyglycolic Acid Polydioxanone Polyglyconate
NON-ABSORBABLE	Silk Cotton Linen Steel	Nylon Polyester Fiber Polypropylene Polybutester Polyethylene

6. Suture selection

- a. Selection must be based on:
 - (1) Knowledge of the healing characteristics of the tissue being closed
 - (2) Physical and biological properties of the material
 - (3) Condition of the wound
 - (4) Probable post-operative course of the patient
- b. The suture material must be inert and should not encourage bacterial growth.
- c. Knots must hold securely without fraying or slipping.
- d. The material must be sterile.
- e. The material must not shrink in tissue fluids.

Information Sheet

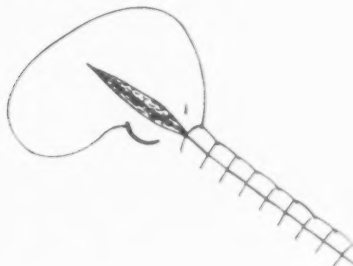
- f. The material must be nonelectrolytic, noncapillary, nonallergenic, and noncarcinogenic.
- g. If absorbable, the material must be of definite and measured absorbability. The absorbability time must correspond to the average healing time of the tissue into which it will be placed.
- h. The strand must be fine in gauge with adequate tensile strength. The suture used must be as small in diameter as is safe for the tissue.
- i. If absorbable, the strand must not act as a foreign body in the wound but should be "walled" off and incorporated by the body.

Note: All of these factors will be considered when selecting a suture. Generally, the surgeon will specify the type and size of suture to be used in a specific circumstance.

7. Suture techniques

- a. Continuous suturing

Figure 1



- (1) Consists of a single strand of suture material, passed back and forth between the wound edges, and tied only on each end of the wound

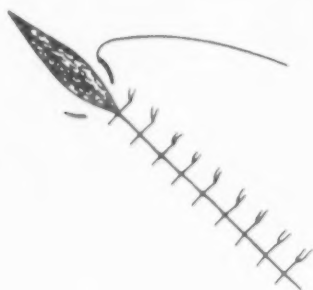
Note: Continuous suturing may also be referred to as a running stitch.

- (2) May be rapidly placed
- (3) Is strong because tension will be evenly distributed along the strand
- (4) If it breaks, the entire line will disrupt.
- (5) Lends itself to wicking action so monofilament is usually used

Information Sheet

b. Interrupted suturing

Figure 2



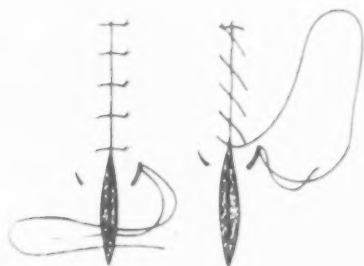
- (1) Consists of individually placed stitches with each being tied and cut as an independent unit
- (2) Is more time consuming to place because each suture must be individually tied and cut
- (3) If a stitch breaks, the remainder of the wound will stay intact.
- (4) Individual sutures may be removed as healing progresses or if a single stitch becomes inflamed or infected.
- (5) Does not lend itself to wicking action

8. Common surgical stitches

Note: Many of these may be placed using either continuous or interrupted suturing technique.

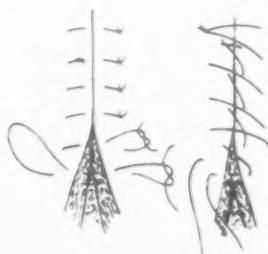
a. Over and over

Figure 3



b. Vertical mattress

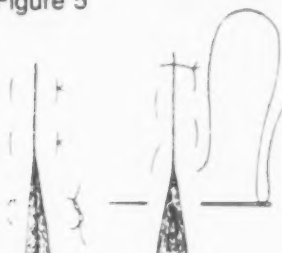
Figure 4



Information Sheet

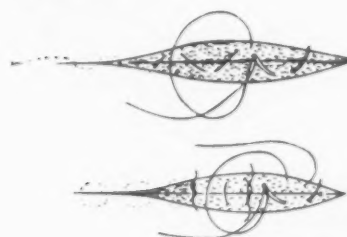
- c. Horizontal mattress

Figure 5



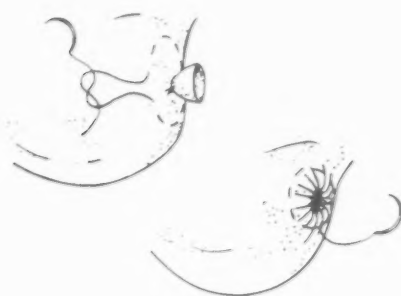
- d. Subcuticular

Figure 6



- e. Purse string

Figure 7



- f. Figure-of-eight

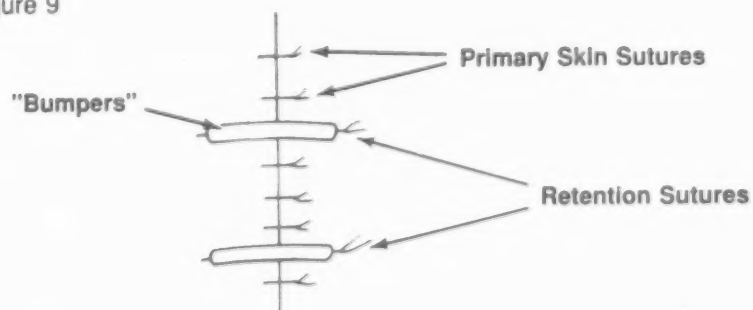
Figure 8



9. Characteristics of retention (stay) sutures

- a. Consist of heavy nonabsorbable sutures placed through all or most of the tissue layers a distance out (approximately 1"-2") from the primary suture line
- b. "Bumpers", bolsters, or bridges are placed at the insertion site to protect the skin from this heavy suture.

Figure 9



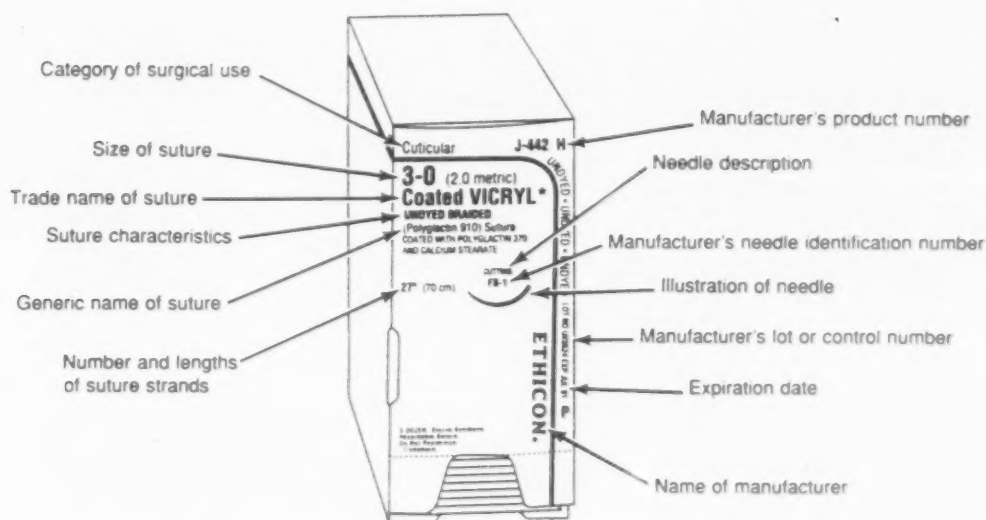
Information Sheet

- d. Are used to reinforce the primary sutures
- e. Relieve strain on the incision
- f. Obliterate dead space which could be left between tissue layers

10. Information on suture packaging

Note: The exact locations of the following information on the suture packages will vary according to the manufacturer.

Figure 10



- a. General information
 - Name of manufacturer
 - Manufacturer's product number
 - Manufacturer's lot or control number
 - Expiration date

Information Sheet**b. Suture information**

- Category of surgical use (general closure, gastrointestinal, etc.)
- Number and lengths of suture strands (for multi-strand packs) or total length of single or continuous suture material (reels)
- Size of suture (gauge)
- Trade and generic names of suture material
- Suture characteristics (absorbable, monofilament, braided, etc.)
- Color of suture (if color is added)

c. Needle information

- Needle description (cutting, taper, etc.)
- Manufacturer's needle identification number
- Length of needle
- Illustration of needle (to show overall shape and type of point)
- Needle attachment method (swaged, detachable, double armed, etc.)
- Number of needles in package (if more than one)

11. Suture preparation

- a. Circulator and/or scrub person checks surgeon's preference card.
- b. Circulator and/or scrub person reads label on dispenser box checking for all pertinent information. Locate the correct suture packages by narrowing down the choices in the following order:
 - (1) Locate color coding on box for type of suture material required (purple for Vicryl®, beige for chromic, etc.)
 - (2) Locate size of suture required (2-0, 3-0, etc.)
 - (3) Locate type of needle required (FS1, RB1, etc.)
 - (4) Locate length of suture required (12", 18", 54", etc.)

Information Sheet

- c. Dispense from suture box only the number of packets required for the procedure.

Note: Suture materials are expensive and you should open only what will be used. More can be opened as needed.

- d. Using sterile technique, the circulator opens the unsterile outer wrapper and dispenses the inner packet to the sterile field by either of the following methods:

- (1) The inner packets are flipped onto the sterile field.
- (2) The sterile scrub person uses sterile gloved hand or an instrument to grasp the inner suture pack from the outer wrapper held by the circulator.

- e. The scrub person reads the label on the primary (inner) packet before opening.

- f. Carefully tear open foil packets.

- g. The scrub person counts needles within the package with the circulator according to hospital policy and procedure.

- h. The scrub person retains the inner package until all counts are completed.

Note: This is useful for product identification during the procedure or if there is a question concerning the needle count.

12. Guidelines for handling suture

- a. To remove swaged suture from the inner foil packet, place the needle holder on the flattened surface of the needle at least 1/4 the distance from the swage or eyed portion of the needle to the point.

- b. To remove regular suture strands from the inner foil packet, grasp the loose end and pull out while holding the folder in the other hand.

Note: Labyrinth packaged suture need not be removed from the package. It is designed for single strand removal when the surgeon is ready to use it.

- c. If the suture requires straightening, grasp free ends and pull gently with a steady, even movement.

Note: Do not jerk or handle suture excessively which can decrease its tensile strength.

- d. Never pull on swaged needles to straighten the suture because this can cause separation of the needle from the strand.

Information Sheet

- e. Standard lengths of suture are 54" for absorbable and 60" for nonabsorbable. They may need to be cut into $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ lengths according to surgeon's preference.
- f. Pre-cut lengths of suture are available in 12" to 30" and should be handled individually.
- g. If absorbable sutures are packaged with an alcohol-water solution, open them over a basin allowing the suture packet to drain into the basin.
- h. Handle all suture as little as possible. Avoid using instruments because they can crush and flatten the strand.
- i. Cut suture only with suture scissors; wire with wire cutters.
- j. Never run gloved fingers along the suture strand because this causes fraying and decreases tensile strength.
- k. Rinse (do not soak) surgical gut and collagen sutures prior to use if preferred by surgeon.

Note: In ophthalmic procedures the alcohol-water solution may cause irritation to delicate eye tissues.

- l. Silk suture should be kept dry because it is stronger when dry.
- m. When threading needle, about 4" of the suture strand should be pulled through the eye to prevent un-threading.
- n. Always protect the needle to prevent dulling the points and cutting edges.
- o. Pass the loaded suture to the surgeon in the appropriate manner.
- p. Handle wire suture carefully as it is prone to bend and kink.

CAUTION: Wire ends are sharp and can puncture gloves.

Information Sheet**13. Characteristics of surgical staples and ligating (hemostatic) clips**

- a. May be absorbable made from synthetic polyesters (polyglycolic/polylactic acid copolymers), or may be nonabsorbable made from stainless steel, tantalum, or titanium
- b. Are available as color coded, disposable cartridges (staples or clips) to be used with reusable staplers or clip applicators, or are available preloaded into disposable staplers or clip applicators
- c. Staples are commonly used in thoracic, abdominal, gynecological, and neurological procedures and in general closure.
- d. Ligating clips are commonly used to occlude (ligate) vessels and other tubular structures.
- e. Both decrease operative time and tissue handling which can result in less tissue edema and inflammation.

14. Miscellaneous products used for wound closure or hemostasis

- a. Bone wax — Sterile preparation rubbed into bleeding points on surface of bone for hemostasis
- b. Skin closure tapes — Long, narrow, sterile strips of tape with adhesive backing used to approximate skin edges
- c. Surgical mesh — Available in stainless steel, polyester fiber, polypropylene, or polyglactin 910 mesh used to reinforce or bridge tissue deficiencies in order to gain maximum repair
- d. Umbilical tape — $\frac{1}{8}$ " white woven cotton ligature frequently used to isolate and suspend small structures in pediatric and cardiovascular procedures

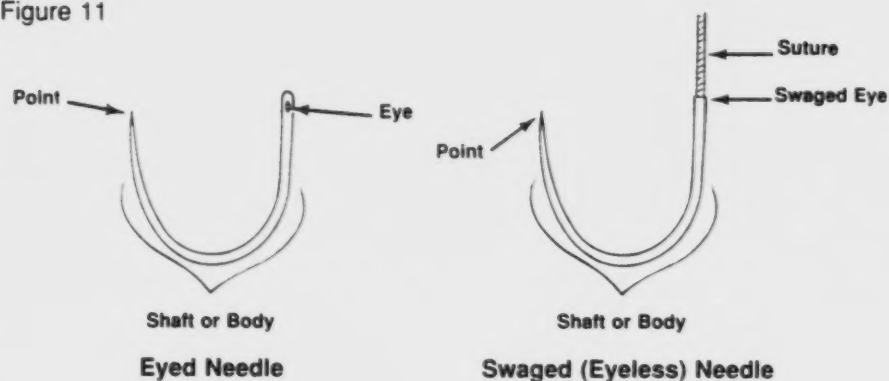
Information Sheet

15. Parts of a surgical needle

- a. Point
- b. Shaft (body)
- c. Eye

Note: The eye is not visible on swaged needles because it is inside the end of the needle.

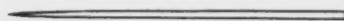
Figure 11



16. Surgical needles according to their classifications

- a. According to overall shape

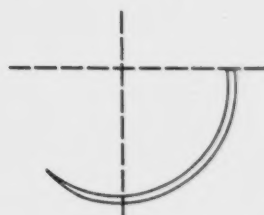
(1) Straight



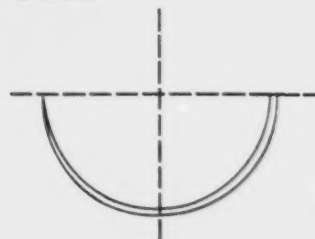
(2) $\frac{1}{4}$ circle



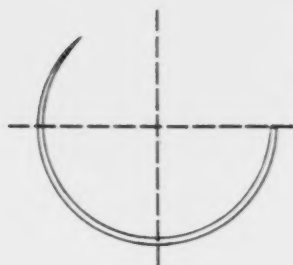
(3) $\frac{3}{8}$ circle



(4) $\frac{1}{2}$ circle



Information Sheet

(5) $\frac{5}{8}$ circle

b. According to point

(1) Taper

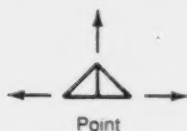


(2) Blunt

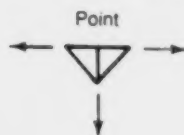


(3) Cutting

(a) Conventional cutting



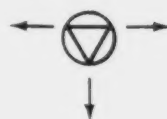
(b) Reverse cutting



(c) Side-cutting



(d) Trocar



c. According to shaft (body area)

(1) Round



(2) Oval



(3) Triangular



(4) Trapezoidal

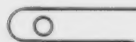


Information Sheet

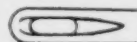
d. According to eye

(1) Closed eye

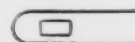
(a) Round



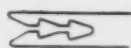
(b) Oblong



(c) Square



(2) French eye (spring or split eye)

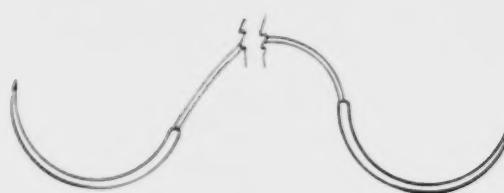


(3) Eyeless (swaged)

(a) Single-armed



(b) Double-armed



Note: Swaged needles may be permanently attached or detachable when pulled.

17. Needle selection

- a. Needle selection is dependent upon the tissue being sutured and the depth at which the surgeon is working.

Note: Since the only purpose for the surgical needle is to introduce suture into the tissue, the needle should alter tissue as little as possible.

- b. Generally the deeper the wound, the greater the curvature.
- c. Curved needles are commonly used to approximate tissues because they are easily placed.
- d. Straight needles are generally used only on the skin and superficial wounds.

Information Sheet

- e. Needles are delicate, medium, or heavy. Their selection is dependent upon the tissue being closed.
 - (1) Delicate needles are used on ophthalmic tissue, vessels, and the intestines.
 - (2) Medium needles are used for general closure and gynecological procedures and muscles.
 - (3) Heavy needles are used for gynecological procedures and muscles.
- f. Cutting points are used on tissues that are difficult to penetrate such as skin, tendons, and tough tissues of the eye.
- g. Needles with cutting shafts are used for tough, heavy tissues.
- h. Taper point needles are used on soft, delicate tissues such as the intestine and peritoneum.
- i. Blunt point needles are used for suturing friable tissue such as the liver, kidney, and spleen.
- j. Match suture diameter to needle diameter when using eyed needles.

Note: Using eyeless (swaged) needles eliminates this decision. The eyeless needle is the least traumatic to tissue.
- k. Use observation as a guide if surgeon preference is not known by paying close attention to the progress of the surgical procedure.

18. Handling of surgical needles

- a. Always protect needle sharpness.
 - (1) Check cutting edges and points for burrs.
 - (2) Inspect eyed needles for rough or sharp edges inside the eye; they may cause fraying and breakage of suture.
 - (3) If needle defects are noted, discard the needle.
- b. During the case, pass needles to the surgeon on an exchange basis only—one needle is returned before another is passed.
- c. When passing a straight needle (such as a Keith needle), you must pass it as you do a scalpel (with fingers on top) or you may use a needle holder clamped on first ratchet only.

Information Sheet

- d. If a needle breaks, all pieces must be accounted for.
- e. Needles on the sterile field must be secured.
 - (1) In the package (unopened)
 - (2) On a needle holder
 - (3) In a sterile, magnetic, puncture-resistant, needle container or a sterile needle counting board.

CAUTION: Accumulation of used needles in a medicine cup, inserted through or into original suture packet, or sterile towels does not follow Universal Precautions procedures. These would present potential contamination hazards to patients and employees.

- f. Dispose of sutures and needles according to hospital policies and procedures.
- g. Count needles according to hospital policies and procedures.

Note: This will be discussed in more detail in Unit 7-C.

Sutures and Needles Unit 3-C

Student Supplement 1—Typical Abdominal Sutures

Name _____ Date _____

TISSUE	CHARACTERISTICS	SUTURE TYPE*	SUTURE SIZE	STITCH**
Vessels	Fine, heal rapidly Large, heal rapidly May ooze	A A or NA	3-0 3-0	Tie Tie
GI tract	Heals rapidly; May leak	2 layers submucosal-A serosal-NA		Cont Int
Biliary tract	Heals rapidly	A	3-0 4-0	Cont
Liver, kidney, spleen	Heals rapidly; little connective tissue so sutures tend not to hold	A	3-0 4-0	Int
Peritoneum	Heals quickly	A	0 2-0	Cont
Deep fascia	Heals slowly Is strength of abd. wall	usually NA; may use A	0 2-0	Int
Muscle	Heals slowly, but tends not to loose strength if split rather than cut	usually NA; may use A	0 2-0	Int
Superficial fascia	Heals slowly; layer of greatest strength	usually NA; may use A	0 2-0	Int
Subcutaneous fat	Does not tolerate suture well; only a few to eliminate dead-space	A	3-0 4-0	Int
Skin	Heals fairly slowly, but is fairly tough	NA	3-0 4-0 5-0	Int

* A — Absorbable, NA — Nonabsorbable

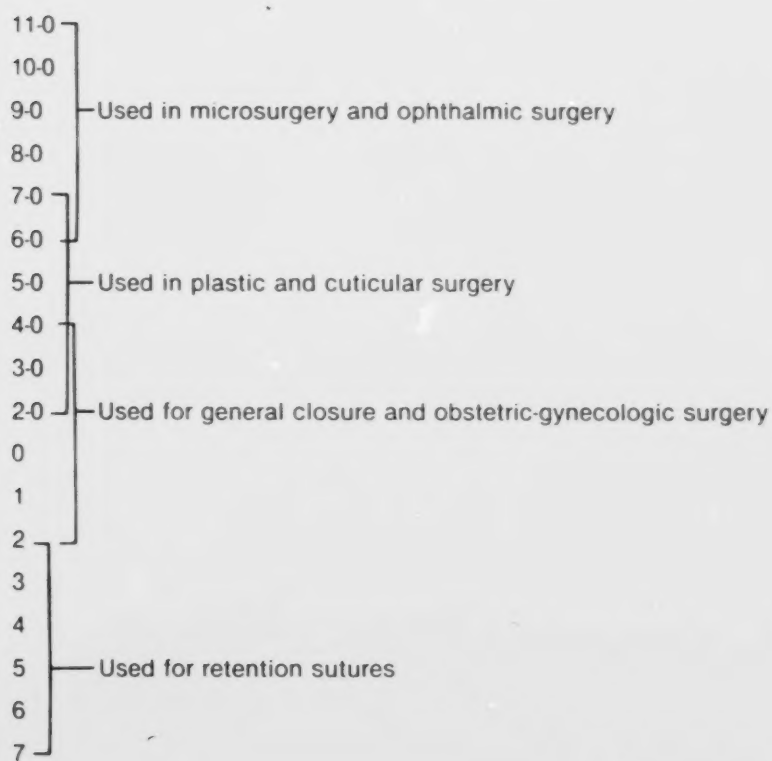
** Cont — Continuous, Int — Interrupted

Sutures and Needles Unit 3-C

Student Supplement 2—Suture Size and Usage

Name _____ Date _____

Smallest
Diameter



Largest
Diameter

Note: The more 0's, the smaller the diameter. The smaller the diameter, the less tensile strength the strand will have.

Sutures and Needles
Unit 3-C

Student Supplement 3—Stainless Steel Wire Sizing

Name _____ Date _____

USP SIZE	B&S GAUGE
Smallest	
6-0	40 & 38
5-0	35
4-0	34 & 32
3-0	30
2-0	28
0	26
1	25
2	24
3	23
4	22
5	20
7	18
Largest	

Note: Stainless steel wires are used in general closure, retention sutures, neurosurgery, tendon repair, and orthopedics. Wire has strength, inertness, and low tissue reaction.

Sutures and Needles Unit 3-C

Job Sheet 1—Transfer Suture Material to Sterile Field

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled appropriate supplies	_____
Handled outer wrap appropriately	_____
Grasped inner packet using sterile technique	_____
Stood safe distance from back table	_____
Deposited inner wrap on back table	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear surgical attire and have your back table and Mayo stand prepared to simulate an actual operating room setting. Perform the task of the circulator asking another student to assist as the scrub person. Then perform the task of the scrub person asking another student to assist as the circulator.

A. Equipment and materials

Circulator in appropriate attire
Sterile scrub person
Suture packages (2)
Sterile instrument (such as a clamp)
Sterile Mayo stand or back table

B. Procedure

1. Method 1

- ☐ a. Circulator grasps outer packet flaps between extended thumbs.
- ☐ b. Circulator rolls hands outward to peel packet apart exposing sterile end of inner packet.
- ☐ c. Circulator offers sterile end to scrub person.

Job Sheet 1

- ☐ d. Scrub person grasps the sterile inner packet with sterile gloved hand or sterile instrument.

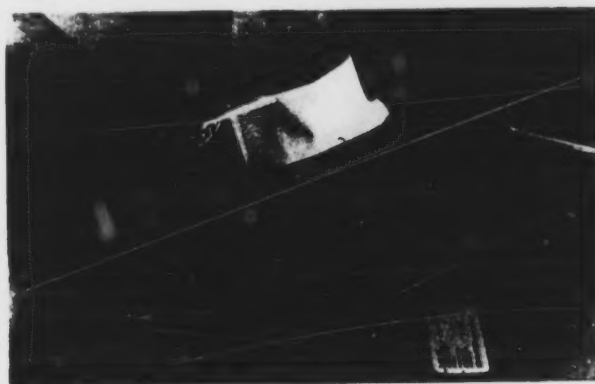
Figure 1



2. Method 2

- ☐ a. Circulator stands a safe distance from sterile table (approximately 12").
- ☐ b. Circulator rolls flaps of overwrap backward.
- ☐ c. Circulator "flips" inner packet onto sterile table surface.

Figure 2



Evaluator's comments: _____

Sutures and Needles
Unit 3-C

Job Sheet 2—Straighten Sutures

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Opened inner packet correctly	_____
Grasped strand 1"-2" from suture needle junction	_____
Straightened suture by gently pulling	_____
Grasped suture ties 1" from each end gently pulling	_____
Refrained from running fingers down suture strand	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear sterile scrub attire and have your back table and Mayo stand prepared to simulate an actual operating room setting.

A. Equipment and materials

Sterile scrub person
Suture packet with swaged needle
Pre-cut strands of suture ties (plain or chromic)

Job Sheet 2

B. Procedure

1. Suture packet with swaged needle

- ☐ a. Tear open foil packet and remove swaged needle and strand from protective folder.

Figure 1



- ☐ b. Grasp strand 1"-2" away from needle-suture junction (being careful not to puncture glove with suture needle) with left hand and the free end with right hand and gently pull.

Figure 2



Job Sheet 2

2. Plain or chromic suture ties

- ☐ a. Tear open foil packet and remove pre-cut strands of suture ties.

Figure 3



- ☐ b. Grasp strands 1" from each end and gently pull being careful not to run fingers down suture strands.

Figure 4



Evaluator's comments: _____

Sutures and Needles Unit 3-C

Job Sheet 3—Cut Sutures in $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ Lengths

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Opened inner packet correctly	_____
Appropriately cut suture strand in $\frac{1}{2}$ length	_____
Appropriately cut suture strand in $\frac{1}{3}$ length	_____
Appropriately cut suture strand in $\frac{1}{4}$ length	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear sterile scrub attire and have your back table and Mayo stand prepared to simulate an actual operating room setting.

A. Equipment and materials

Standard length suture packet on sterile field
Sterile scrub person
Suture scissors

B. Procedure

1. Cut sutures in $\frac{1}{2}$ lengths.
 - ☐ a. Tear open foil packet, and remove strand.
 - ☐ b. Grasp two free ends with right hand.

Job Sheet 3

- ☐ c. Unwind to $\frac{1}{2}$ length.

Figure 1



- ☐ d. Pull gently to straighten.
- ☐ e. Cut with suture scissors at loop in left hand.
2. Cut sutures in $\frac{1}{3}$ lengths
- ☐ a. Tear open foil packet, and remove strand.
- ☐ b. Pass one free end of the strand from right to left hand.
- ☐ c. Simultaneously catch a loop around third finger of right hand.

Figure 2



Job Sheet 3

- ☐ d. Make the strands equal.
 - ☐ e. Pull gently to straighten.
 - ☐ f. Cut with suture scissors at the loop.
3. Cut sutures in $\frac{1}{4}$ lengths.
- ☐ a. Open packet, and remove strand.
 - ☐ b. Pass both free ends from right to left hand.
 - ☐ c. Simultaneously catch a double loop around the third finger of right hand.

Figure 3



- ☐ d. Pull gently to straighten.
- ☐ e. Cut at loops with suture scissors.

Evaluator's comments: _____

Sutures and Needles Unit 3-C

Job Sheet 4—Load and Pass a Needle Holder With Swaged Needle for Right- and Left-Handed Surgeons

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Opened inner packet correctly	_____
Grasped swaged needle ¼ distance from swag	_____
Pointed needle to left for right-handed surgeon	_____
Pointed needle to right for left-handed surgeon	_____
Passed needle holder correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear sterile scrub attire and have your back table and Mayo stand prepared to simulate an actual operating room setting. Alternate roles of scrub and surgeon with other students.

A. Equipment and materials

Suture packet with swaged needle
Needle holder (6"-8")
Sterile scrub person
Sterile surgeon (role play as right- and left-handed)

B. Procedure

- ☐ 1. Carefully grasp inner packet with left hand. Tear packet towards you with the right hand at notch to expose needle.

Job Sheet 4

- ☐ 2. Arm needle directly from packing grasping needle $\frac{1}{4}$ the distance from the swage to the point.

Figure 1



- ☐ a. For right-handed surgeon, the needle point should go to the left.

Figure 2



Job Sheet 4

- ☐ b. For left-handed surgeon, the needle point should go to the right.

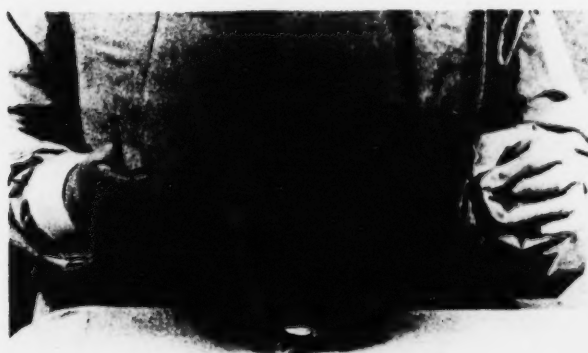
Figure 3



- ☐ 3. Holding loaded needle holder in your right hand, grasp strand approximately 2" away from needle-suture junction (being careful not to puncture glove with needle) between thumb and forefinger, also on right hand. Hold free end in left hand and gently pull to straighten strand.

Note: If you pulled directly on the needle, it could damage the suture or detach the suture from the needle.

Figure 4



Job Sheet 4

- ☐ 4. Pass to surgeon by grasping box lock and passing with needle pointing up. Control free end with other hand to prevent strand from dragging over the sterile field.
- ☐ a. For right-handed surgeon, the needle point goes to the left.

Figure 5



- ☐ b. For left-handed surgeon, the point goes to the right.

Figure 6



Evaluator's comments: _____

Sutures and Needles Unit 3-C

Job Sheet 5—Load, Thread, and Pass a Needle Holder With Eyed Needle for Right- and Left-Handed Surgeons

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Loaded needle holder correctly	_____
Threaded needle correctly	_____
Passed needle holder correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear sterile scrub attire and have your back table and Mayo stand prepared to simulate an actual operating room setting. Alternate roles of scrub and surgeon with other students.

A. Equipment and materials

Suture strand 18"-30"

Needle

Needle holder (6"-8")

Sterile scrub person

Sterile surgeon (role play as right- and left-handed)

Job Sheet 5

B. Procedure

- ☐ 1. Place needle on needle holder, approximately $\frac{3}{4}$ of the distance from point to eyed end. Place near the tip of the needle holder. For right-handed surgeon, the point should go to the left; for left-handed surgeon, the point goes to the right.

Figure 1



- ☐ 2. Thread suture through eye.

Note: Suture can be threaded from inside or outside the curve. If you thread from the inside curve, be very careful not to puncture your glove on the needle point. Check with your instructor for his/her preferred method.

Figure 2



Job Sheet 5

- ☐ 3. Pull short end of strand 2"-3" through the eye.

Note: For deep suturing, the short end should be about 4".

Figure 3



- ☐ 4. To prevent unthreading, the strand may be wrapped around the needle holder and needle, with the strand placed in the tip of the needle holder.

Figure 4



Job Sheet 5

- ☐ 5. Pass to surgeon by grasping box lock and passing with needle pointing up. Control free end with other hand to prevent strand from dragging over the sterile field.
- ☐ a. For right-handed surgeon, the needle point goes to the left.

Figure 5



- ☐ b. For left-handed surgeon, the point goes to the right.

Figure 6



Evaluator's comments: _____

Sutures and Needles
Unit 3-C**Job Sheet 6—Pass Ties**

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Opened inner packet correctly	_____
Passed free tie correctly	_____
Passed suture reel correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear sterile scrub attire and have your back table and Mayo stand prepared to simulate an actual operating room setting. Alternate roles of scrub and surgeon with other students.

A. Equipment and materials

Sterile surgeon
Sterile scrub person
Suture strand 18"-30"
Continuous suture packet on a reel

Job Sheet 6

B. Procedure

1. Pass free tie.

- ☐ a. Grasp suture strand at each end.
- ☐ b. Hold taut.

Figure 1



- ☐ c. Come in and under the surgeon's extended fingers.
- ☐ d. Come up as the surgeon grasps the suture.

Figure 2



Job Sheet 6

2. Pass continuous suture (ties) on a reel.
- ☐ a. Tear open foil packet containing material on reel and extend end of strand slightly for easy grasping.
 - ☐ b. Place strand on Mayo stand until needed.
 - ☐ c. Pass to surgeon when needed being certain end of suture is free to be grasped.

Figure 3



Evaluator's comments: _____

Sutures and Needles
Unit 3-C

Job Sheet 7—Tag and Cut Sutures

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Sutures are tagged correctly	_____
Sutures are cut correctly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Wear sterile scrub attire and have your back table and Mayo stand prepared to simulate an actual operating room setting. Alternate roles of scrub and surgeon with other students.

A. Equipment and materials

Sutures, placed and tied
Hemostats, small and curved
Suture scissors
Sterile surgeon
Sterile scrub person

Job Sheet 7

B. Procedure

Note: Sutures are placed and tied by the surgeon.

- ☐ 1. Pass small hemostats as needed to tag sutures.

Note: "Tagging" is generally done on deep structures where multiple sutures will be placed, tied, and tagged. The surgeon will return and cut all of these at one time.

Figure 1



- ☐ 2. Cut sutures as directed with suture scissors.
- ☐ a. For surgical gut (absorbable), cut about 6 mm from knot.

Job Sheet 7

- ☐ b. For silk and cotton (nonabsorbable), cut about 3 mm from knot to decrease foreign material left in wound and minimize tissue reaction.

Note: If wire is being used, you must use wire cutters after suture is twisted.

Figure 2



Evaluator's comments: _____

Sponges, Dressings, and Packings

Unit 4-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to identify surgical sponges and dressings, discuss their uses, appropriately apply various surgical dressings, and complete statements concerning the use of surgical packings. The student should demonstrate these competencies by completing the job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to sponges, dressings, and packings with their correct definitions.
2. State uses of surgical sponges.
3. Identify commonly used surgical sponges.
4. Distinguish between true and false statements concerning the characteristics of surgical sponges.
5. Discuss uses of surgical dressings.
6. Match layers of a surgical dressing with the correct functions.
7. Complete statements concerning the use of packings.
8. Complete statements concerning specialty dressings.
9. Complete statements concerning the procedure required in the application of a sterile surgical dressing.
10. Construct a sponge stick. (Job Sheet 1)
11. Assemble and apply a routine postoperative abdominal dressing. (Job Sheet 2)
12. Apply an ostomy bag to an abdominal stoma site. (Job Sheet 3)
13. Assemble and apply a Montgomery strap dressing. (Job Sheet 4)

Sponges, Dressings, and Packings

Unit 4-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Surgical Sponges (Objective 3)
TM 2—Surgical Dressings (Objective 5)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of the Unit Evaluation Form, which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Suggested Activities

Evaluation

12. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
13. Make copies of the written test. Add or modify test items as needed.
14. Give written test.
15. Compile job sheet ratings and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
16. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce this unit, have on display the various articles that may be included in dressing layers and commonly used surgical sponges.
2. Point out the radiopaque strips in surgical sponges.
3. Discuss with the students the legal implications of using only radiopaque sponges when a body cavity is opened during a surgical procedure.
4. Discuss with the students other regional names that may be used for the various surgical sponges.
5. Demonstrate the various methods of constructing a sponge stick before students attempt Job Sheet 1.
6. Discuss with the students that the application of a sterile surgical dressing is regarded as part of the surgical procedure. The scrub person and circulator assist the surgeon or first assistant to dress the wound properly.
7. Explore with the students the various types of surgical wounds and how the dressing material should be tailored to the site and condition of the wound.

Suggested Activities

8. Place the names of various surgical procedures in a container, and have the students draw a procedure from the container. Ask each student to describe what they think will be needed for the dressing and explain why. Assist the students in exploring other dressing alternatives. **Communication skills, problem-solving skills**
9. Use a mannequin for demonstration purposes when discussing the assembly and application of surgical dressings. This may also be used for the return demonstration from the students when performing Job Sheets 2-4.
10. Discuss with the students situations when the wound is not dressed at all.
11. Explore with the students how the absence of a surgical dressing might aid in wound healing.

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nursing, Inc., 1992.
1. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
2. Bennett, R. G. "Selection of Wound Closure Materials." *Journal of the American Academy. Dermatol* 18:4, 1988.
3. Corder, Jacqueline W. *Logic of Operating Room Nursing*, 3rd ed. Oradell, NJ: Medical Economics Company Inc, 1984.
4. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Sanders Company, 1986.
5. Garner, Julia S. *Guidelines for the Prevention of Surgical Wound Infections*. Atlanta: Department of Health and Human Services, 1985.
6. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.
7. Wysocki, A. "Surgical Wound Healing: A Review for Perioperative Nurses." *AORN Journal* 49:502, 1989.

Suggested Activities

Suggested Supplemental Resources

1. *Draining Wound Management*, 28 minutes. Describes draining wounds, skin damage caused by draining wounds, and components of an ostomy drainage system. Available from:

American Journal of Nursing Company
Educational Services Division
555 West 57th Street
New York, NY 10019-2961
800-CALLAJN (225-5256)

2. *Surgical Wound Care*, 26 minutes. Presents techniques for changing a variety of dressings; also potential complications.
3. *The Surgical Dressing*, 21 minutes. Identifies the functions of the layers of the non-occlusive dressing.

2 and 3 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Grove, CA 92641
800-877-1443 or 714-891-1443

4. *3M Wound Care*, 11 minutes. Features five 3M wound care products.
5. *Moist Wound Healing*, 13 minutes. Covers principles of moist wound healing.

4 and 5 are available from:

3-M Health Care
c/o Computer Chrome, Inc.
2610 University Avenue
St. Paul, MN 55114
800-228-3957

Suggested Activities

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

- Yes—Can perform job with no additional training.
- No—Is unable to perform job satisfactorily.

Sponges, Dressings, and Packings
Unit 4-C

Answers to Written Test

1. a. 6 d. 4
 b. 2 e. 1
 c. 7 f. 5

2. Any two of the following:

- a. To absorb blood and tissue fluid during operative procedure
- b. For tissue dissection
- c. To protect tissues from injury during operative procedures
- d. To apply pressure or traction

3. a. Gauze sponges or 4 × 4s
 b. Dissecting sponges
 c. Laparotomy sponges
 d. Neurosurgical sponges or cottonoids

4. a. T
 b. F; Surgical sponges always have a radiopaque strip woven into sponge in order to facilitate identification and location by x-ray if one is left in the wound.
 c. T
 d. T
 e. F; Gauze sponges are never placed on the surgical field after the peritoneum or thoracic cavity is opened unless attached to a sponge forcep.
 f. T
 g. F; Dissectors are used for blunt dissection.
 h. T

5. Any four of the following:

- a. To keep the incision free from microorganisms
- b. To maintain a moist environment that permits host defense mechanisms to destroy bacteria, but that prevents destruction of newly formed epithelial cells from dehydration and permits removal without disruption of these cells
- c. To protect the incision from outside injury
- d. To absorb drainage of exudates and secretions from the wound
- e. To give support to the incision and surrounding area
- f. To splint or immobilize a body part
- g. To apply medication directly to the incisional area
- h. To conceal the wound aesthetically
- i. To apply pressure to reduce edema, prevent hematoma, and aid in hemostasis

Answers to Written Test

6. a. 2 d. 3 g. 2 j. 1
b. 1 e. 2 h. 1
c. 1 f. 3 i. 1
7. a. Nasal, vaginal
b. Gauze-like
c. Lubricants or antiseptics
d. Attending surgeon
8. a. 2 d. 1
b. 3 e. 4
c. 4 f. 1
9. a. Is
b. Surgeon
c. Final
d. Damp
e. Before
f. Separately
g. Before
h. But not tightly

810

Sponges, Dressings, and Packings

Unit 4-C

Written Test

Name _____

Score _____

1. Match terms on the right with the correct definitions.

- _____ a. Sterile materials applied to the incision site at completion of a surgical procedure
- _____ b. Separation of tissues through anatomical planes
- _____ c. Sterile, absorbent, lint-free material of varying sizes and shapes with radiopaque strips used during operative procedures
- _____ d. Impenetrable to x-rays or other forms of radiation; therefore, is visible under x-ray
- _____ e. Use of a sponge or blunt instrument to separate tissue on a normal anatomical plane
- _____ f. Use of a knife, scissors, or cutting instrument to separate tissue

- 1. Blunt dissection
- 2. Dissection
- 3. Packing
- 4. Radiopaque
- 5. Sharp dissection
- 6. Surgical dressing
- 7. Surgical sponge

2. State two uses of surgical sponges.

- a. _____
- b. _____

3. Identify the following commonly used surgical sponges.



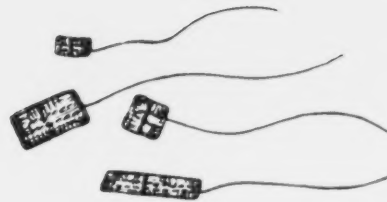
a. _____



b. _____

811

Written Test



c. _____

d. _____

4. Distinguish between true and false statements concerning the characteristics of surgical sponges by placing a "T" in the blank if the statement is true or place an "F" in the blank if the statement is false. If the statement is false, use the space below each statement to write the statement correctly.

_____ a. Surgical sponges are always counted according to written hospital policy and procedure.

_____ b. Surgical sponges always have a lead strip through them in order to facilitate identification if one is left in the wound.

_____ c. Laparotomy sponges are generally used in major surgical procedures.

_____ d. Gauge sponges are used on minor superficial procedures.

_____ e. Gauge sponges are left loose on the field after the peritoneum is opened.

812

Written Test

- _____ f. Gauge sponges may be called "sponge sticks" if mounted on an instrument.

- _____ g. Dissectors are used for sharp dissection.

- _____ h. Some specialty areas have sponges unique to their procedures.

5. Discuss four uses of surgical dressings.

- a. _____
- b. _____
- c. _____
- d. _____

6. Match the layers of a surgical dressing on the right with the correct functions.

- | | |
|---|-----------------------|
| _____ a. Acts as a cushion to protect the wound | 1. Inner layer |
| _____ b. Lies against the wound to provide a protective barrier | 2. Intermediate layer |
| _____ c. Should be non-adherent for painless removal | 3. Outer layer |
| _____ d. Prevents telescoping | |
| _____ e. Holds secretions passing through inner layer | |

Written Test

- | | | |
|----------|---|-----------------------|
| _____ f. | Conforms and is stretchable for mobility | 1. Inner layer |
| _____ g. | Should not apply pressure that could compromise circulation | 2. Intermediate layer |
| _____ h. | Stays in contact with wound surface for at least 48 hours | 3. Outer layer |
| _____ i. | Acts as a passageway for the wound's secretions | |
| _____ j. | Provides a wicking action to help reduce risk of infection | |

7. Complete statements concerning the use of packings by filling in the blanks.

- a. Used in body cavities such as the _____ cavity or _____ cavity
- b. Available in long, thin strips of _____ material
- c. Frequently impregnated with _____
- d. Generally removed by the _____ in the post-operative patient care unit

8. Complete the following statements concerning specialty dressings by selecting the best answers. Circle or write the numbers in the blanks.

_____ a. _____ are used when frequent wound inspections are required.

- (1) Pressure dressings
- (2) Montgomery dressings
- (3) Stent dressings
- (4) Ostomy bags

_____ b. The dressing used to stabilize tissues around the face or neck is called a/an _____ dressing.

- (1) Pressure
- (2) Montgomery
- (3) Stent
- (4) Ostomy

Written Test

_____ c. A pressure dressing eliminates _____, prevents edema, or hematoma.

- (1) Friction
- (2) Drainage
- (3) Bulky dressings
- (4) Dead space

_____ d. _____ usually washes off or wears off after several days.

- (1) Collodion spray
- (2) Occlusive transparent film
- (3) Stent dressing
- (4) Ostomy bag

_____ e. A dressing applied to a colostomy is called a/an

- (1) Flat body dressing
- (2) Abdominal binder
- (3) Stent dressing
- (4) Ostomy bag

_____ f. Adhering occlusive polyurethane transparent film provides easy _____ the surgical wound.

- (1) Visualization of
- (2) Access to
- (3) Irrigation of
- (4) Pressure to

9. Complete statements concerning the procedure required in the application of a sterile surgical dressing by circling the correct word(s).

- a. Application of a surgical dressing (is, is not) considered part of the surgical procedure.
- b. The scrub person and circulator assist the (surgeon, anesthesiologist) to dress the wound properly.
- c. The circulator opens the sterile dressing after the (first, final) count.
- d. Skin surrounding the incision is cleaned of blood with a (damp, dry) sponge.
- e. Surgeon, first assistant, or scrub person should don a clean pair of sterile gloves over operating gloves (after, before) applying inner and intermediate layers of dressing.

Written Test

- f. Incision and wound drainage site are dressed (separately, together) unless the drain comes out through the incision.
- g. Surgeon, first assistant, or scrub person applies sterile dressings (before, after) drapes are removed.
- h. Circulator applies tape or Montgomery straps firmly (and tightly, but not tightly) to avoid wrinkling and traction of skin.

Sponges, Dressings, and Packings
Unit 4-C

Unit Evaluation Form

Student Name _____ Unit Rating _____

Job Sheet 1—Construct a Sponge Stick Rating _____

Comments: _____

Job Sheet 2—Assemble and Apply a Routine
Postoperative Abdominal Dressing Rating _____

Comments: _____

Job Sheet 3—Apply an Ostomy Bag to an
Abdominal Stoma Site Rating _____

Comments: _____

Job Sheet 4—Assemble and Apply a Montgomery Strap Dressing Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

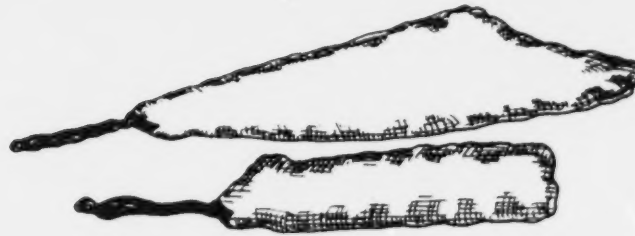
Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

Surgical Sponges



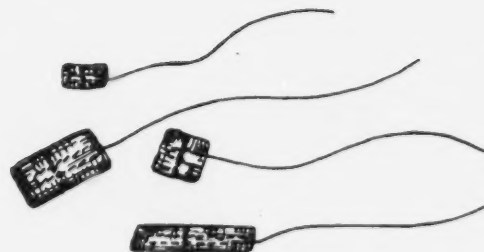
Laparotomy Sponges



Gauze Sponges
(4 x 4s shown)



Dissecting Sponges

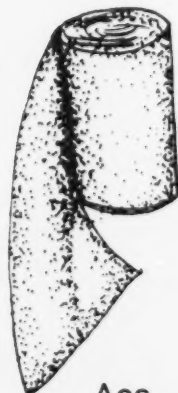


Neurosurgical Sponges

Surgical Dressings



Non-Adherent Pads and Dry Absorbent Pads



Ace



Stockinet



Kerlix



Kling

Roller Dressings

Sponges, Dressings, and Packings

Unit 4-C

Information Sheet

1. Terms and definitions

- a. **Dissection** — Separation of tissues through anatomical planes; may be sharp or blunt
 - (1) **Blunt dissection** — Use of a sponge or blunt instrument to separate tissue on a normal anatomical plane
 - (2) **Sharp dissection** — Use of a knife, scissors, or cutting instrument to separate tissue
- b. **Packing** — Gauze sponges and strips used to fill a cavity or wound
- c. **Radiopaque** — Impenetrable to x-rays or other forms of radiation; therefore, is visible under x-ray
- d. **Surgical dressing** — Sterile materials applied to the incision site at completion of a surgical procedure
- e. **Surgical sponge** — Sterile, absorbent, lint-free material of varying sizes and shapes with radiopaque strips used during operative procedures

2. Uses of surgical sponges

- a. To absorb blood and tissue fluid during operative procedures
- b. For tissue dissection
- c. To protect tissues from injury during operative procedures
- d. To apply pressure or traction

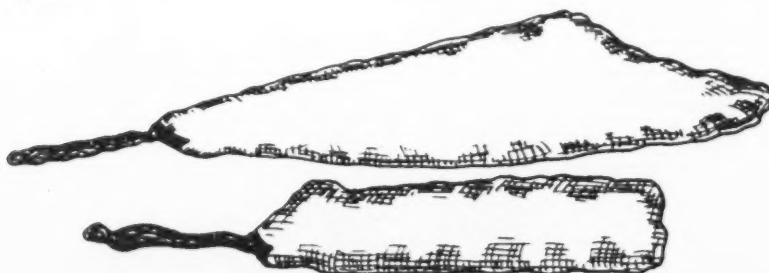
Information Sheet

3. Commonly used surgical sponges

a. Laparotomy sponges

Note: Laparotomy sponges are available in several sizes such as 12" x 12", 18" x 18", 8" x 36", etc. They may be called laps, tapes, lap tapes, lap packs, or lap sponges.

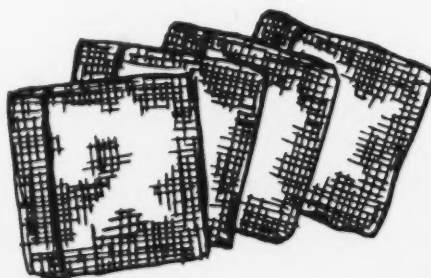
Figure 1



b. Gauze sponges

Note: Gauze sponges are available in several sizes such as 3" x 3", 4" x 4", 4" x 8", etc. They may be called raytecs, C-sponges, swabs, or CDs. These should not be confused with non-radiopaque 4 x 4s which are used as dressings. Gauze sponges should not be opened to a single ply. Fibers along raw edges will become foreign bodies in the wound.

Figure 2



Information Sheet**c. Dissecting sponges (large and small)**

- (1) Peanut sponges are very small gauze sponges. They must be clamped into a forcep.
- (2) Kitner sponges are small rolls of heavy cotton tape. They are held in a forcep.
- (3) Tonsil sponges are cotton-filled gauze with a cotton thread or tape attached.

Note: Dissectors may also be called pills, cherries, or pushers.

Figure 3

**d. Neurosurgical sponges**

Note: Neurosurgical sponges are very small and are available in several sizes such as $\frac{1}{2}'' \times \frac{1}{2}''$, $\frac{1}{2}'' \times 1''$, $1'' \times 1''$, $1'' \times 3''$, etc. They are designed for use in delicate procedures. They may also be called cottonoids or patties.

Figure 4



Information Sheet

4. Characteristics and uses of surgical sponges

- a. Made of soft, absorbent, lint-free materials
- b. Always counted according to written hospital policy and procedure.
- c. Always have a radiopaque strip woven into sponge in order to facilitate identification and location by x-ray if one is left in the wound
- d. Laparotomy sponges are generally used in major surgical procedures such as thoracotomy and abdominal surgery.
- e. Laparotomy sponges are frequently moistened with normal saline to pad intra-abdominal retractors, thereby protecting underlying tissues.
- f. Gauze sponges are used on minor superficial procedures.
- g. Gauze sponges are never placed on the surgical field after the peritoneum or thoracic cavity is opened *unless* attached to a sponge forcep.
- h. When attached to an instrument, gauze sponges are called "sponge sticks."
- i. Dissectors are always used mounted on an instrument such as a Pean.
- j. Dissectors are used for blunt tissue dissection.
- k. Some specialty areas have sponges unique to their procedures, such as neurosurgical cottonoids or ophthalmic surgery Weck-cel®.

5. Uses of surgical dressings

- a. To keep the incision free from microorganisms
- b. To maintain a moist environment that permits host defense mechanisms to destroy bacteria, but that prevents destruction of newly formed epithelial cells from dehydration and permits removal without disruption of these cells
- c. To protect the incision from outside injury
- d. To absorb drainage of exudates and secretions from the wound
- e. To give support to the incision and surrounding area
- f. To splint or immobilize a body part
- g. To apply medication directly to the incisional area

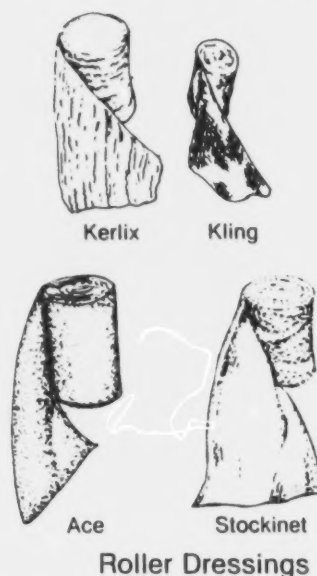
Information Sheet

- h. To conceal the wound aesthetically
- i. To apply pressure to reduce edema, prevent hematoma, and aid in hemostasis

Figure 5—Examples of surgical dressings



Non-Adherent Pads and Dry Absorbent Pads



Roller Dressings

6. Layers of a surgical dressing and their functions

- a. Inner (contact) layer
 - (1) Lies against the wound to provide a barrier against pathogens
 - (2) Acts as a passageway for the wound's secretions
 - (3) Has a wicking action to help reduce risk of infection
 - (4) Must stay in contact with the wound surface for at least 48 hours, yet be nonadherent for painless removal
 - (5) May be:
 - (a) Nonocclusive — Nonadherent material that draws secretions from wound but remains air permeable. The looser the weave of the material, the more nonocclusive it is.
 - (b) Semiocclusive — Hydroactive materials that provide a mechanical surface with permeability properties.

Information Sheet

- (c) Occlusive — An air-tight seal that prevents drying of the wound. Is impermeable to air and water, but allows passage of secretions.

Examples: Telfa®, Vaseline® gauze, Xeroform®

Note: Dry gauze is not used on a denuded area because it adheres to the wound and acts as a foreign body. Granulation tissue will grow into it and bleeding can be reactivated when it is removed.

b. Intermediate layer

- (1) Absorbent layer which holds the secretions passing through inner layer
- (2) Acts as a cushion to protect the wound from further trauma
- (3) Should not apply pressure that could compromise circulation

Examples: 4 × 4 gauze, ABD pads, Kerlix®, Kling®, cotton padding

c. Outer layer (binding)

- (1) Holds the inner and intermediate layers in proper position
- (2) Should be conforming and stretchable
- (3) Should prevent telescoping if mobility is desired

Examples: Adhesive tape, hypo-allergenic tapes, elastic bandage, elastic bandage with adhesive on one side

Note: Many times all layers of a dressing are not used. Only one or two of the layers may be the physician's preference. Occasionally the wound is not dressed at all.

7. Use of packings

- a. Used in body cavities such as the nasal cavity or vagina
- b. Available in long, thin strips of gauze-like material
- c. Frequently impregnated with lubricants or antiseptics
- d. Generally removed in the post-operative patient care unit by the attending surgeon

Information Sheet

8. Specialty dressings

a. Montgomery straps

- (1) May be used when frequent wound inspections are required
- (2) Hold a bulky dressing in place
- (3) Absorb a moderate to large amount of drainage
- (4) Provide easy access to the wound

b. Stent dressing

- (1) May be used when it is impossible to pressure dress an area such as the face or neck
- (2) Applies pressure and stabilizes tissues
- (3) Provides a form-fitting mold that may be taped over the area or long suture ends can be criss-crossed over a small dressing and tied

c. Pressure dressing

- (1) May be used following extensive operations, especially in plastic surgery and operations on the knee or breast
- (2) Eliminates dead space, prevents edema, or hematoma
- (3) Distributes pressure evenly
- (4) Absorbs extensive drainage
- (5) Supports and immobilizes soft tissues when muscles are moved
- (6) Encourages wound healing and minimizes scarring by influencing wound tension
- (7) Provides comfort to the patient postoperatively

d. Collodion spray or liquid

- (1) May be used to form a thin barrier over the closed wound when no or slight drainage is expected from the surgical wound
- (2) Usually washes or wears off after several post-operative days

Information Sheet

e. Adhering occlusive polyurethane transparent film

- (1) May be used on a clean incision that is primarily closed with sutures, staples, or skin closure tapes and no or slight drainage is expected from the surgical wound
- (2) Provides easy visualization of the surgical wound
- (3) Allows the patient to shower or bath with dressing in place
- (4) Usually removed 24 to 48 hours after the surgical procedure

Example: Op-site®, Ensure®, Tegaderm®, Bioclusive®

Note: Polyurethane transparent film is available in several sizes.

f. Sanitary napkins (V-pads)

- (1) May be used when vaginal or rectal drainage is expected
- (2) Easily changed by the nursing staff or the patient

g. Ostomy bag — Used when a stoma has been created such as in a colostomy or ileostomy

9. Application of a surgical dressing

- a. Application of a surgical dressing is considered part of the surgical procedure.
- b. The scrub person and circulator assist the surgeon to dress the wound properly.
- c. The circulator opens the sterile dressing after the final count.

Note: Radiopaque sponges are not used as dressings because they could distort a postoperative x-ray.

- d. Skin surrounding the incision is cleaned of blood with a damp sponge.
- e. Surgeon, first assistant, or scrub person should don a clean pair of sterile gloves over operating gloves before applying inner and intermediate layers of dressing.
- f. Incision and wound drainage site are dressed separately unless the drain comes out through the incision. In that case, scrub person cuts slit in dressings to go around the drain.

Information Sheet

- g. Surgeon, first assistant, or scrub person applies sterile dressings before drapes are removed.
- h. Circulator may spray benzoin on skin around intermediate layer before adhesive tape is applied to increase its adhesion.
- i. Circulator applies tape or Montgomery straps firmly but not tightly to avoid wrinkling and traction of skin.

CAUTION: Traction and wrinkling of the adhesive tape may cause skin irritation.

Note: If patient has a known sensitivity to regular adhesive tape, hypo-allergenic tape should be used.

- j. Surgeon or first assistant applies elastic bandages, pressure dressings, stockinet and casts, and stents if required. The circulator provides the necessary supplies and assists as appropriate.

Sponges, Dressings, and Packings Unit 4-C

Job Sheet 1—Construct a Sponge Stick

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria

Rating

Assembled appropriate supplies _____

Folded sponge into necessary sections _____

Clamped sponge forcep accurately _____

Used only radiopaque sponges _____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your back table and Mayo stand prepared to simulate an actual operating room setting.

A. Equipment and materials

Radiopaque four-by-four gauze sponges

Sponge forcep

B. Procedure

- ☐ 1. Fold four-by-four sponge into one-third section.

Figure 1



Job Sheet 1

- ☐ 2. Fold in one-half.

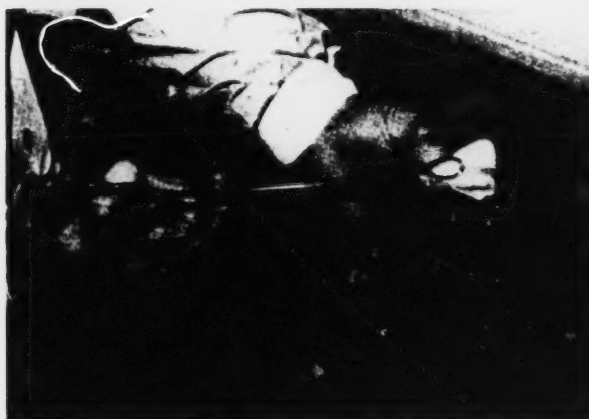
Figure 2



- ☐ 3. Place loose edge in sponge forcep.
- ☐ 4. Close forcep.

Note: Small dissector sponges may also be called "sponge sticks" when placed on an instrument such as a Pean or Mixer.

Figure 3



Evaluator's comments: _____

Sponges, Dressings, and Packings Unit 4-C

Job Sheet 2—Assemble and Apply a Routine Postoperative Abdominal Dressing

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled appropriate supplies	_____
Cleansed and dried area as necessary	_____
Assembled dressing in the correct order	_____
Applied each dressing layer accurately	_____
Used only non-radiopaque supplies	_____
Removed drapes after dressings were applied	_____
Applied tape according to surgeon's preference	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your operating field prepared to simulate an actual operating room setting. Use a mannequin or a student volunteer as the patient.

A. Equipment and materials

Sterile saline
Sterile towel
Non-adherent dressing
Soft, absorbent dressing
Tape
Patient

Note: When considering the components to assemble for the dressing, keep in mind the needs of that particular wound. The dressing material should be tailored to the condition of the wound site—large enough to cover and protect the wound site and the tissue around it.

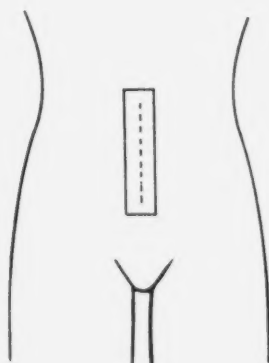
B. Procedure

- ☐ 1. Cleanse area with sterile saline to remove blood and prep solutions.
- ☐ 2. Dry area.

Job Sheet 2

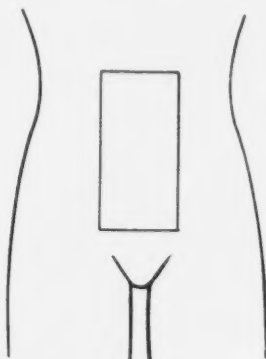
- ☐ 3. Place non-adherent dressing (Telfa®) over incision.

Figure 1—Non-adherent dressing over incision



- ☐ 4. Place absorbent dressing material (4 × 4s, ABDs) over non-adherent dressing.

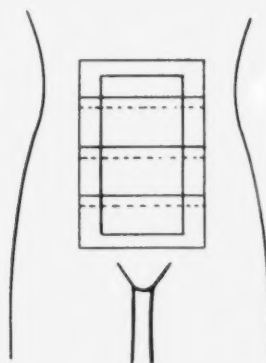
Figure 2—Absorbent dressing over non-adherent dressing



Job Sheet 2

- ☐ 5. Apply tape according to surgeon's preference or hospital standards.

Figure 3—Dressing secured with tape



Evaluator's comments: _____

Sponges, Dressings, and Packings

Unit 4-C

Job Sheet 3—Apply an Ostomy Bag to an Abdominal Stoma Site

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled appropriate supplies	_____
Cleansed and dried area as necessary	_____
Prepared stoma site	_____
Properly placed stoma bag on abdomen	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your operating field prepared to simulate an actual operating room setting. Use a mannequin or a student volunteer as the patient.

A. Equipment and materials

Sterile saline
 Sterile towel
 Ostomy bag
 Skin protectant such as benzoin spray
 Patient

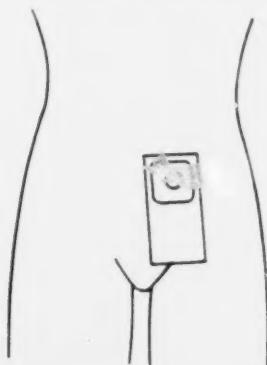
B. Procedure

- ☐ 1. Cleanse and dry area around stoma with normal saline.
- ☐ 2. Apply skin protectant.
- ☐ 3. Remove adhesive backing from ostomy bag.

Job Sheet 3

- ☐ 4. Place bag securely over stoma.

Figure 1—Ostomy bag over stoma



Evaluator's comments: _____

Sponges, Dressings, and Packings

Unit 4-C

Job Sheet 4—Assemble and Apply a Montgomery Strap Dressing

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled appropriate supplies	_____
Cleansed and dried area as necessary	_____
Prepared skin around wound site	_____
Assembled dressing in the correct order	_____
Applied each dressing layer accurately	_____
Used only non-radiopaque supplies	_____
Removed drapes after dressings were applied	_____
Secured straps firmly but not tightly	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your operating field prepared to simulate an actual operating room setting. Use a mannequin or a student volunteer as the patient.

A. Equipment and materials

Sterile saline
 Sterile towel
 Montgomery strap dressing
 Roll of 1" roller gauze (or umbilical tape)
 Non-adherent dressing
 Large, absorbent dressing materials
 Skin protectant such as benzoin spray
 Patient

B. Procedure

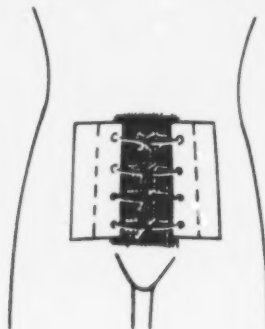
- ☐ 1. Cleanse and dry affected area.
- ☐ 2. Place non-adherent dressing such as Telfa®.
- ☐ 3. Spray skin with a protectant such as benzoin where straps are to be placed.
- ☐ 4. Place each side of Montgomery dressing.

Job Sheet 4

- ☐ 5. Place large absorbent dressing.
- ☐ 6. Pass roller gauze (or umbilical tape) through openings.
- ☐ 7. Tie in place.

Note: The absorbent dressings may be changed repeatedly without retaping the dressing.

Figure 1—Montgomery strap dressing



Evaluator's comments: _____

Drainage Systems and Tubes

Unit 5-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to distinguish between the different types of drainage systems and tubes and be able to connect them. The student should demonstrate these competencies by completing the assignment sheet and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to drainage systems and tubes with their correct definitions.
2. Describe uses for catheters, drains, and tubes.
3. Select true statements concerning placing and securing catheters, drains, and tubes.
4. Complete statements concerning the types of drainage mechanisms.
5. Match types of gastrointestinal tubes with the correct descriptions.
6. Complete statements concerning airway tubes and their descriptions.
7. Complete statements concerning chest tubes and their characteristics.
8. Match types of wound drains with the correct uses.
9. Identify common types of urethral catheters.
10. Classify types of drainage systems and tubes according to their functions. (Assignment Sheet 1)
11. Connect a Hemovac®. (Job Sheet 1)
12. Connect a Jackson-Pratt®. (Job Sheet 2)
13. Connect a chest tube to a closed drainage system. (Job Sheet 3)

Drainage Systems and Tubes Unit 5-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Gastrointestinal Tubes (Objective 5)
TM 2—Airway Tubes (Objective 6)
TM 3—Chest Tubes (Objective 7)
TM 4 and 5—Wound Drains (Objective 8)
TM 6—Urethral Catheters (Objective 9)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of the Unit Evaluation Form, which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the assignment sheet. Review criteria for evaluation of this activity.

Suggested Activities

12. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce this unit have on display the various types of drainage systems and tubes that are discussed in this unit.
2. Use the transparency masters as you discuss each piece of equipment.
3. Invite a guest speaker such as urology scrub person or anesthesia personnel to discuss the equipment they are familiar with and use. Provide them with the information in this unit so they may discuss any equipment that is not listed here or other uses they may be familiar with. **Communication skills, influence skills.**
4. Discuss the importance of the scrub person being familiar with the different equipment mentioned in this unit. It will increase their efficiency, thus promoting better patient care. **Influence skills, communications skills.**
5. Demonstrate for the students how to connect a T-tube to a bile bag. Allow the students to practice this task when time is available.
6. If equipment is available, demonstrate the difference between a single closed chest drainage system and a two-bottle underwater seal drainage system.

Suggested Activities

7. Demonstrate for the students how to empty a drainage collection device and re-seal the system.
8. If you have cooperation with an area hospital's operating room, plan a field trip with the students to have a scavenger hunt for the equipment mentioned in this unit. Divide the students into small groups, giving each group a list of equipment names omitting the functions. Plan a reward for the group that finds all the equipment.
9. Show videos on wound drainage. Ask the students to turn in a short paper on closed suction drainage. **Writing foundation skills, communication skills.**

Resources Used in Developing This Unit

1. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
2. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Sanders Company, 1986.
3. Kirk, R. M. *Basic Surgical Techniques*, 3rd ed. New York: Churchill Livingstone, 1989.
4. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.
5. Peacock, E. *Wound Repair*, 3rd ed. Philadelphia: W. B. Saunders Co., 1984.
6. *A Practical Guide to Wound Care*. New Brunswick, NJ: Johnson and Johnson Products Inc., 1985.
7. Wysocki, A. "Surgical Wound Healing: A Review for Perioperative Nurses." *AORN Journal* 49:502, 1989.

Suggested Supplemental Resources

1. *Understanding Chest Tube Drainage Systems*, 28 minutes. Covers 1, 2, and 3 bottle systems, Pleur-evac, and Emerson pump. Available from:

American Journal of Nursing Company
Educational Services Division
555 West 57th Street
New York, NY 10019-2961
800-CALLAJN (225-5256)

Suggested Activities

2. *Chest Tubes: Patient and System Management*, 27 minutes.
3. *Suctioning: Nasotracheal, Oropharyngeal, and Endotracheal Techniques*, 34 minutes.
4. *Tracheostomy Care, Tube Change, and Artificial Airway Cuff Management*, 24 minutes.
5. *Endotracheal Intubation*, 29 minutes.
6. *Closed Suction Wound Drainage, Wound Irrigation, and Specimen Collection*, 23 minutes.
7. *Urethral Catheterization*, 26 minutes.

2 through 7 are available from:

Medcom/Trainex
P.O. Box 3225
Garden Grove, CA 92641
800-877-1443 or 714-891-1443

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Suggested Activities

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Drainage Systems and Tubes
Unit 5-C

Answers to Assignment Sheet 1

1. A
2. B or C
3. C
4. B
5. A
6. A
7. B
8. C
9. A
10. B
11. B or C
12. C
13. A
14. C
15. A

Drainage Systems and Tubes Unit 5-C

Answers to Written Test

1.

a.	7	d.	4	g.	1
b.	2	e.	9	h.	6
c.	10	f.	3		
2. Any two for **each** of the following:
 - a. Catheters
 - (1) Used to allow a method for instillation of irrigations or medications
 - (2) Used to remove obstructions (such as clots or stones) from lumens of small ducts or vessels
 - (3) Used as splints in urology for ureters or the urethra
 - (4) Used as a route to instill dye in diagnostic studies
 - b. Drains
 - (1) Used for elimination of fluid accumulation and collection of this fluid
 - (2) Used to eliminate dead spaces
 - (3) Used to allow apposition of tissues
 - (4) Used to prevent formation of hematomas
 - (5) Used to prevent wound margin necrosis by eliminating air pressure on uppermost margins of the wound which allows wound to heal from inside out
 - (6) Used for gentle retraction of tissue during operative procedures to allow better visualization of the operative site
 - (7) May be used to prevent abscess formation on trauma patients
 - c. Tubes
 - (1) Used to maintain an opening such as in the trachea
 - (2) Used to decompress the gastrointestinal tract
 - (3) Used to evacuate the pleural cavity and maintain a negative pressure so lungs can expand and contract
3.

a.	T
b.	F
c.	T
d.	T
e.	F
4.

a.	Capillary action
b.	Gravity
c.	Manual
5.

a.	3
b.	2
c.	4

Answers to Written Test

- 6.
 - a. Anesthesia
 - b. "Non-cuffed" or "uncuffed"
 - c. Suctioning
 - d. Any order:
 - (1) Obturator
 - (2) Primary tube (outer cannula)
 - (3) Inner cannula
 - e. Pharyngeal
- 7.
 - a. 3
 - b. 4
 - c. 1
 - d. 3
 - e. 2
- 8.
 - a. 5
 - b. 3
 - c. 4
 - d. 6
 - e. 2
- 9.
 - a. Coudé
 - b. Whistle
 - c. Robinson (plain) (red rubber) (Robnel)
 - d. Malecot (4-winged)
 - e. Two-way Foley
 - f. Pezzer (mushroom)

Drainage Systems and Tubes Unit 5-C

Written Test

Name _____

Score _____

1. Match terms on the right with the correct definitions.

- _____ a. Hollow opening through a tube or catheter
- _____ b. Instrument for exploring and dilating canals, especially the male urethra and the esophagus
- _____ c. Long, hollow, cylindrical structure
- _____ d. Exit for discharge of abnormal fluid accumulations or to draw off fluid
- _____ e. Catheter or tube that remains in place due to its design such as a Foley
- _____ f. Tube passed into or through the body for evacuating or injecting fluids into body cavities
- _____ g. Drainage attached to an external source of vacuum to create suction in the cavity
- _____ h. Any catheter that is allowed to remain in place in a vein, artery, or body cavity

- 1. Active drainage
- 2. Bougie
- 3. Catheter
- 4. Drain
- 5. Drainage tube
- 6. Indwelling
- 7. Lumen
- 8. Passive drainage
- 9. Self-retaining
- 10. Tube

2. Describe at least two uses each for catheters, drains, and tubes.

a. Catheters

- (1) _____

- (2) _____

Written Test

b. Drains

(1) _____

(2) _____

c. Tubes

(1) _____

(2) _____

3. Select true statements concerning placing and securing catheters, drains, and tubes by placing a "T" or "F" next to the true or false statements.

_____ a. Gastrointestinal tubes and urinary catheters are secured according to the doctor's orders.

_____ b. Wound drains are generally placed preoperatively by the circulator.

_____ c. Wound drains may be placed in the cavity and exteriorized through a separate stab wound.

_____ d. Wound drains may be laid in the cavity and exteriorized through the existing incision.

_____ e. Wound drains are never secured.

4. Complete the following statements concerning the types of drainage mechanisms by circling the correct words.

a. A Penrose drain uses (gravity, capillary action) as the drainage mechanism.

b. Urinary catheters and T-tubes use (gravity, capillary action) as the drainage mechanism.

c. Hemovacs® and Jackson-Pratts® use (external, manual) suction.

Written Test

5. Match types of gastrointestinal tubes on the right with the correct descriptions.
- | | | |
|----------|--|-----------------------|
| _____ a. | Single lumen tube used for gastric decompression connected to gravity drainage or intermittent suction | 1. Miller-Abbott tube |
| _____ b. | Double lumen tube used for gastric decompression connected to gravity drainage or constant suction | 2. Sump tube |
| _____ c. | Single lumen tube with 5-8 cc mercury-filled latex balloon used for intestinal decompression | 3. Levine tube |
| | | 4. Cantor tube |
6. Complete the following statements concerning airway tubes by filling in the blanks with the correct answers.
- a. Endotracheal tubes are used for administration of _____.
- b. Pediatric and infant endotracheal tubes are _____ since pediatric patients' tracheas are smaller and might be damaged by snug fitted tubes.
- c. Endotracheal tubes require no collection device; however, oxygen may be administered via the tube and respiratory secretions will need to be removed by _____.
- d. The three primary parts of a tracheostomy tube are:
- (1) _____
- (2) _____
- (3) _____
- e. The (nasal, pharyngeal) airway tube is inserted through the mouth.
7. Complete the following statements concerning chest tubes and their uses by placing your answers in the blanks provided.
- _____ a. Chest tubes are used for all of the following reasons **EXCEPT**
- (1) To evacuate hemothorax
- (2) To drain pleural abscesses
- (3) To drain esophageal abscesses
- (4) To evacuate pneumothorax

Written Test

_____ b. Chest tubes are required on most cases in which the _____ cavity is entered.

- (1) Pelvic
- (2) Abdominal
- (3) Spinal
- (4) Thoracic

_____ c. Chest tubes are _____ connected to an underwater seal drainage system.

- (1) Always
- (2) Usually
- (3) Occasionally
- (4) Never

_____ d. Self-contained drainage system units are known as

- (1) Thor-evac®
- (2) Hemovac®
- (3) Pleur-evac®
- (4) Pneumovac®

_____ e. A frequently used suction source for chest tubes is the _____ pump.

- (1) Oxygen
- (2) Emerson
- (3) Thoreau
- (4) Nitrogen

8. Match types of wound drains on the right with the correct uses.

_____ a. Used as a Penrose, but gauze allows for "wick" action on accumulated fluid

_____ b. Used after common bile duct exploration to ensure patency of duct; connected to bile bag and drained by gravity

_____ c. Used to drain wound where small to moderate amounts of drainage are expected; has self-contained collecting device

1. Penrose drain

2. Hemovac®

3. T-tube

4. Jackson-Pratt®

5. Cigarette drain

6. Malecot or
Pezzer catheter

Written Test

- _____ d. Used to drain hollow organs such as bladder, may be used as gastrostomy tube, and may be placed in large abscess site; connected to drainage bag and drained by gravity
- _____ e. Used to drain wound after extensive dissection or where moderate to large amounts of drainage are expected; has self-contained collecting device

9. Identify the following common types of urethral catheters.



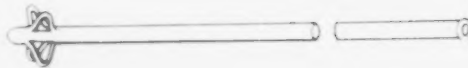
a. _____



b. _____



c. _____



d. _____



e. _____



f. _____

*Permission to duplicate this test is granted.

851

**Drainage Systems and Tubes
Unit 5-C**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Classify Types of Drainage Systems
and Tubes According to Their Functions Rating _____

Comments: _____

Job Sheet 1—Connect a Hemovac® Rating _____

Comments: _____

Job Sheet 2—Connect a Jackson-Pratt® Rating _____

Comments: _____

Job Sheet 3—Connect a Chest Tube to a Closed
Drainage System Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

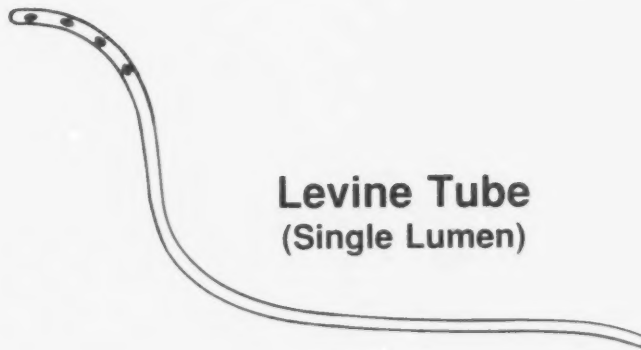
Teacher Signature _____ Date _____

Student Signature _____ Date _____

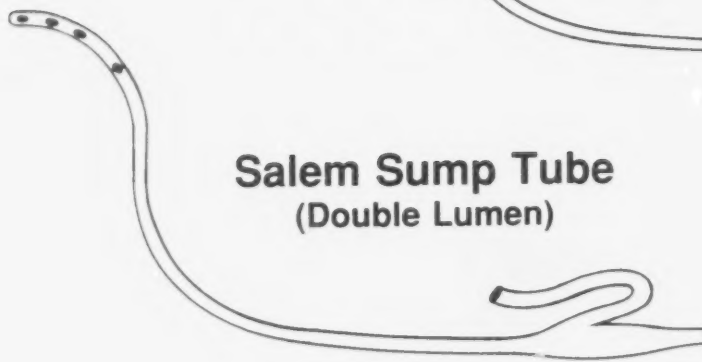
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852

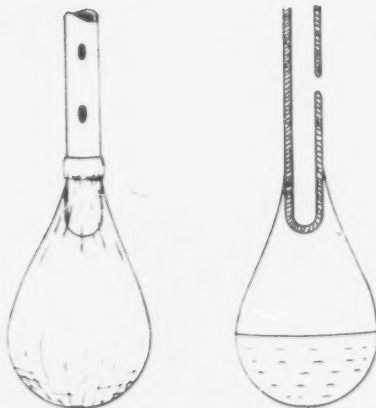
Gastrointestinal Tubes



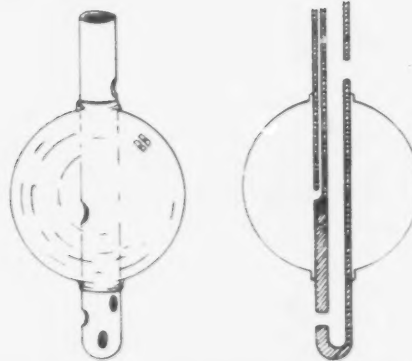
Levine Tube
(Single Lumen)



Salem Sump Tube
(Double Lumen)

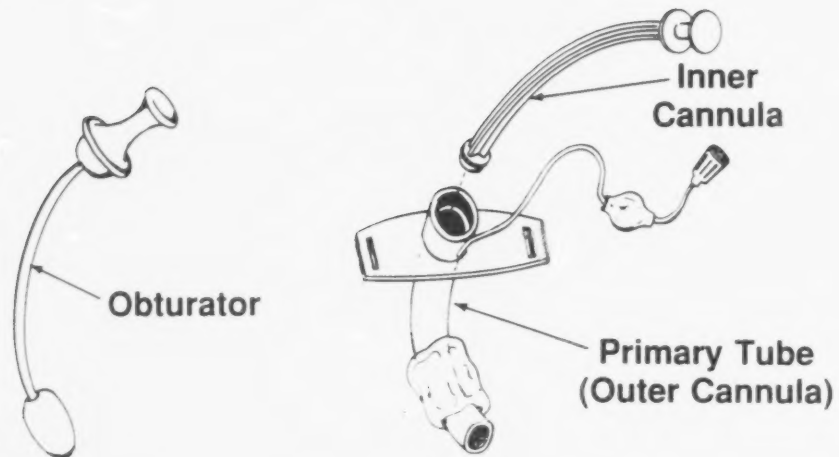


Cantor Tube
Single Lumen
Balloon attaches to tube



Miller-Abbott Tube
Double Lumen
Balloon continuous with tube

Airway Tubes



Parts of a Tracheostomy Tube



**Adult Endotracheal Tube
"cuffed"**



**Infant Endotracheal Tube
"uncuffed"**



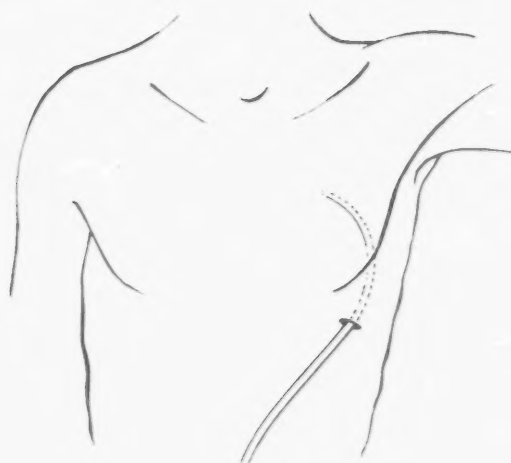
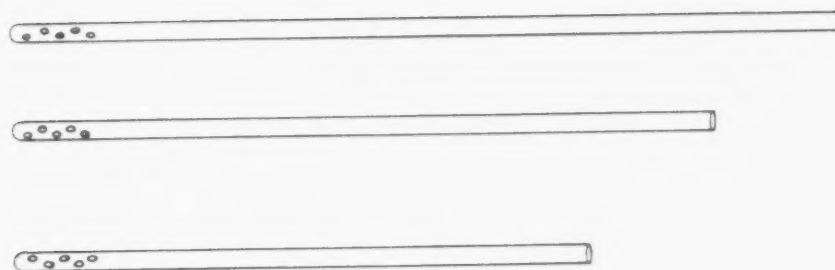
**Pharyngeal
Airway Tube**



Nasal Airway Tube

854

Chest Tubes



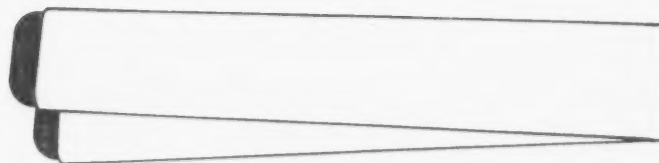
Placement

855

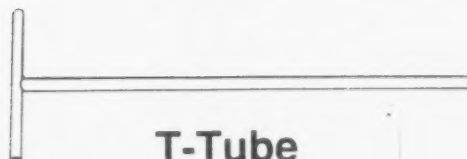
Wound Drains



Penrose



Cigarette
(Penrose with gauze wick)



T-Tube

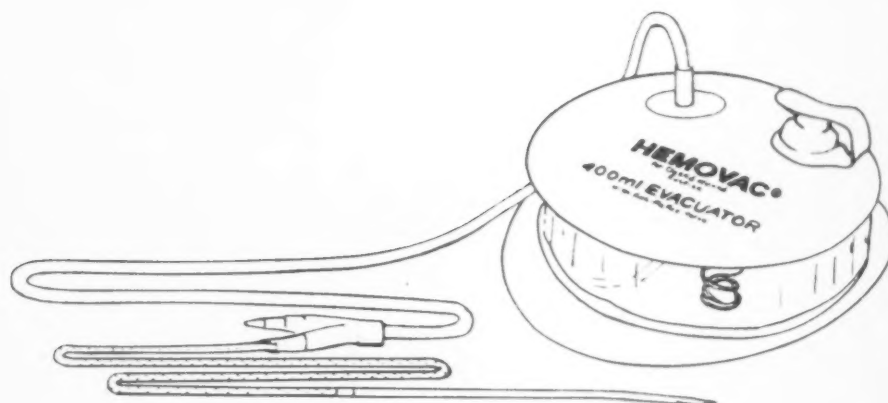


Malecot (Batwing or Winged)



Pezzer (Mushroom)

Wound Drains (Continued)

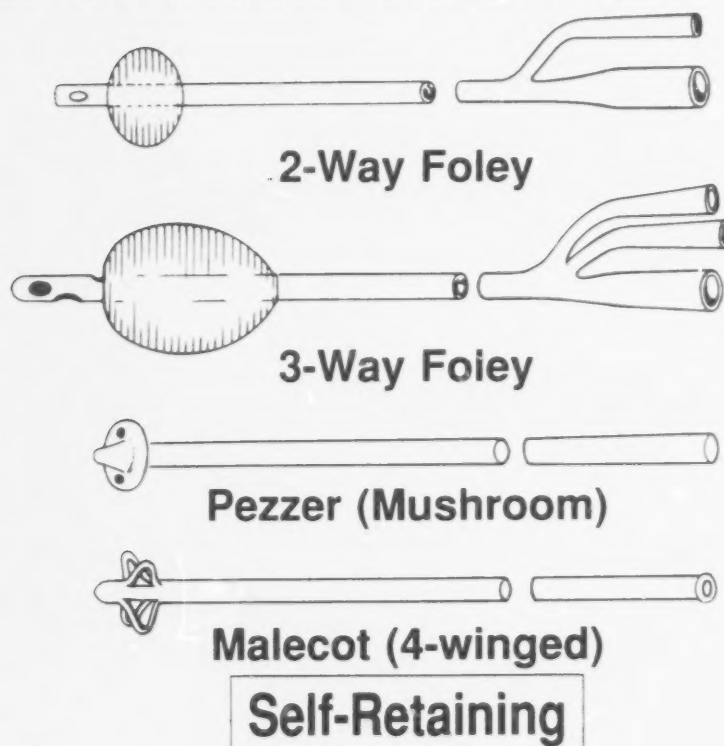


Hemovac® with Accessories



**Jackson-Pratt® Suction
Drain System**

Urethral Catheters



Drainage Systems and Tubes Unit 5-C

Information Sheet

1. Terms and definitions

- a. **Active drainage** — Drainage attached to an external source of vacuum to create suction in the cavity; a constant gentle negative pressure evacuates tissue fluid, blood, or air through the passage
- b. **Bougie** — Instrument for exploring and dilating canals, especially the male urethra and the esophagus
- c. **Catheter** — Tube passed into or through the body for evacuating or injecting fluids into body cavities
- d. **Drain** — Exit for discharge of abnormal fluid accumulations or to draw off fluid
- e. **Drainage tube** — Tube inserted into a body cavity to drain away fluid contents
- f. **Indwelling** — Any catheter that is allowed to remain in place in a vein, artery, or body cavity
- g. **Lumen** — Hollow opening through a tube or catheter
- h. **Passive drainage** — Drainage that provides a path of least resistance to the outside; functions by overflow and capillary action and can be assisted by gravity
- i. **Self retaining** — Catheter or tube that remains in place due to its design such as a Foley
- j. **Tube** — Long, hollow, cylindrical structure

Examples: Eustachian, fallopian, esophagus, endotracheal

Note: The use of these terms may tend to be confusing; however, if you remember their definitions, it will help you distinguish between their names and their functions.

Information Sheet**2. Uses for catheters, drains, and tubes**

Note: These may be used both prophylactically (for prevention as in drainage of bladder to prevent trauma during surgery) and therapeutically (for treatment as in antibiotic irrigation).

a. Catheters

- (1) Used to allow a method for instillation of irrigations or medications
- (2) Used to remove obstructions (such as clots or stones) from lumens of small ducts or vessels
- (3) Used as splints in urology for urethers or the urethra
- (4) Used as a route to instill dye in diagnostic studies

b. Drains

- (1) Used for elimination of fluid accumulation and collection of this fluid
- (2) Used to eliminate dead spaces
- (3) Used to allow apposition of tissues
- (4) Used to prevent formation of hematomas
- (5) Used to prevent wound margin necrosis by eliminating air pressure on uppermost margins of the wound which allows wound to heal from inside out
- (6) Used for gentle retraction of tissue during operative procedures to allow better visualization of the operative site
- (7) May be used to prevent abscess formation on trauma patients

c. Tubes

- (1) Used to maintain an opening such as in the trachea
- (2) Used to decompress the gastrointestinal tract
- (3) Used to evacuate the pleural cavity and maintain a negative pressure so lungs can expand and contract

Information Sheet

3. Placing and securing catheters, drains, and tubes

a. Catheters and tubes

- (1) Gastrointestinal tubes and urinary catheters may be placed in body cavities pre, intra, or post-operatively.
- (2) Self-retaining catheters and tubes are held in place internally by an inflatable balloon.
- (3) They are usually secured outside the body with tape depending on the doctor's orders.

b. Drains

- (1) Usually inserted intraoperatively by the surgeon
- (2) May be placed in the cavity and exteriorized through a separate wound called a stab wound
- (3) May be placed in the cavity and exteriorized through the existing incision
- (4) May be left free or attached securely with suture to the patient's skin
- (5) The exposed end of the drain may or may not be attached to a reservoir or collecting system.

4. Types of drainage mechanisms

a. Capillary action — Movement of fluid along a solid object

Example: Penrose drain

b. Gravity — Movement from high pressure to low pressure

Examples: Urinary catheters, T-tubes

c. Manual suction — Self-contained negative pressure device

Examples: Hemovac®, Jackson-Pratt®

d. External suction — Machine or wall mount

Examples: Salem sump, chest tubes

Information Sheet

5. Types of gastrointestinal tubes and their descriptions

- a. **Levine tube** — Single lumen tube used for gastric decompression connected to gravity drainage or intermittent suction

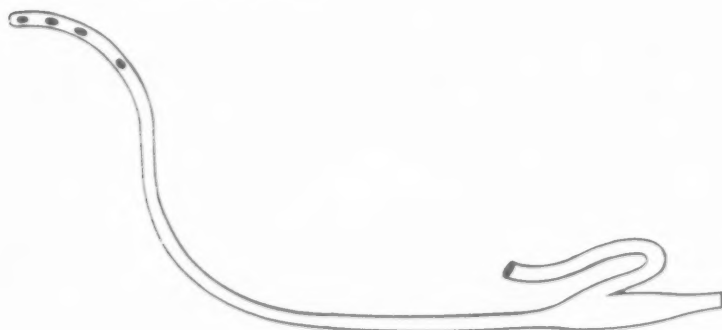
Figure 1—Levine tube



- b. **Sump tube** — Double lumen tube used for gastric decompression connected to gravity drainage or constant suction

Note: The smaller lumen allows for ingress of air with minimal pressure difference across drainage holes to prevent the tube from adhering to the interior wall of the stomach.

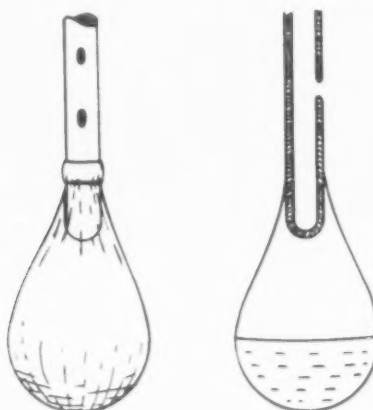
Figure 2—Salem sump tube



Information Sheet

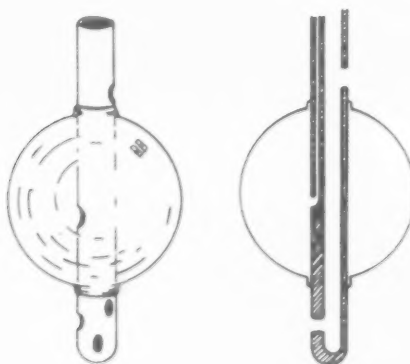
- c. **Cantor tube** — Single lumen tube with 5-8 cc mercury-filled latex balloon used for intestinal decompression

Figure 3—Cantor tube



- d. **Miller-Abbott tube** — Double lumen tube used for intestinal decompression; has one lumen to balloon about 1 cm from tip forming port for injection of mercury after tube is passed and second lumen to provide drainage of intestinal content both above and below the balloon

Figure 4—Abbott tube



Information Sheet

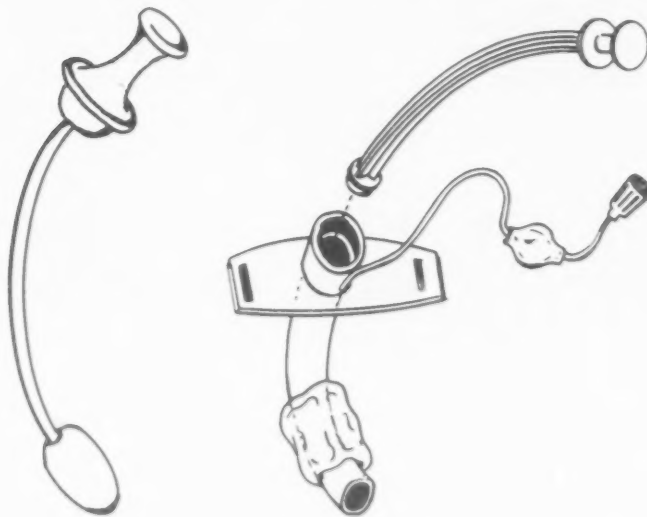
6. Types of airway tubes and their descriptions

a. Tracheal airway tubes

(1) Tracheostomy tube

- (a) Placed in a temporary or permanent opening in the trachea to allow air to enter the bronchi and lungs
- (b) These tubes have three parts:
 - 1) Obturator — Provides a smooth tip during tube insertion to prevent trauma to the tracheal wall
 - 2) Primary tube (outer cannula) — Maintains the patent airway
 - 3) Inner cannula — Removable part that allows cleaning to prevent blockage of airway by crusting of secretions

Figure 5—Tracheostomy tube (adult)



- (c) Has a built-in soft cuff that is inflated to eliminate any free space between the primary tube and the tracheal wall
- (2) Endotracheal tube
 - (a) Placed in the trachea to maintain a patent airway during loss of consciousness
 - (b) These tubes are used for administration of anesthetics.

Information Sheet

- (c) These tubes are predominantly the concern of anesthesia personnel.
- (d) Adult tubes are "cuffed" and the cuff is inflated to allow snug fit of the tube as it extends into the trachea (airway).

Figure 6—Adult endotracheal tube



- (e) Pediatric and infant tubes are "non-cuffed" or "uncuffed" since pediatric patients' tracheas are smaller and might be damaged by snug fitting tubes.

Figure 7—Infant endotracheal tube



- (f) These tubes require no collection device; however, oxygen may be administered via the tube and respiratory secretions may need to be removed by suctioning.

b. Pharyngeal airway tube

- (1) Inserted through the mouth and extends through the oral pharynx
- (2) Maintains airway by preventing patient's tongue from falling back into the oral pharynx

Figure 8—Pharyngeal airway tube (oral)



Information Sheet

c. Nasal airway tube

- (1) Inserted through the nasal passage and extends through the oral pharynx
- (2) Maintains an open nasal airway when mucus membranes may be swollen or when patient has had extensive oral surgery

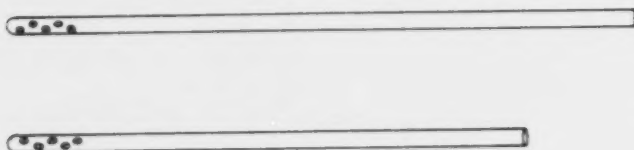
Figure 9—Nasal airway tube



7. Chest tubes and their characteristics

- a. Chest tubes are used to evacuate hemothorax, pneumothorax, or hemothorax, and to drain pleural abscess or empyema.

Figure 10—Chest tubes



- b. Chest tubes are required on most cases in which the thoracic cavity is entered.
- c. If two chest tubes are used, one is placed higher in the chest for evacuation of air, and the other is placed lower for evacuation of blood and serous drainage.
- d. These tubes are always connected to an underwater seal drainage system which may be connected to suction.
- e. Underwater seal drainage is available as
 - (1) Self-contained, plastic, disposable unit or
 - (2) Glass bottle system which may consist of 1, 2, or 3 bottles
- f. Self-contained drainage system units are known as Pleur-evac® or Thora-seal®.
 Note: The principles of drainage are the same as the chest bottles.
- g. For units that are not self-contained, a Gomco or an Emerson pump is a frequently used suction source.

Information Sheet

8. Types of wound drains and their uses

- a. **Penrose drain** — Used to drain abscess cavity and if leakage is anticipated; no collection device needed since allowed to drain onto dressings

Figure 11—Penrose drain



- b. **Cigarette drain** — Used as a Penrose, but gauze allows for "wick" action on accumulated fluid

Note: A Penrose drain is made into a cigarette drain by passing folded gauze packing of suitable width and length through its lumen.

Figure 12—Cigarette drain (Penrose with gauze wick)



- c. **T-tube** — Used after common bile duct exploration to ensure patency of duct; connected to bile bag and drained by gravity

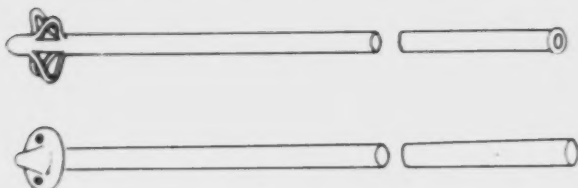
Figure 13—T-tube



Information Sheet

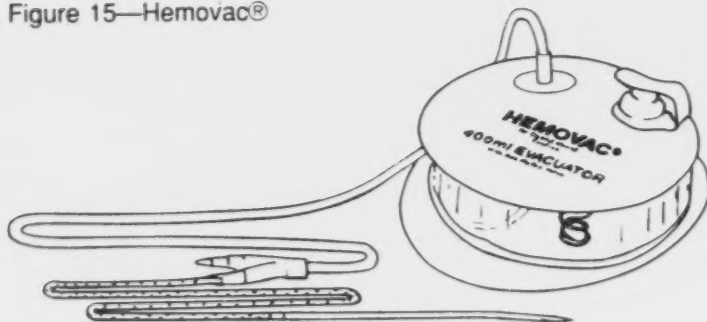
- d. **Malecot or Pezzer catheter** — Used to drain hollow organs such as bladder, may be used as gastrostomy tube, and may be placed in large abscess site; connected to drainage bag and drained by gravity

Figure 14—Malecot and Pezzer catheters



- e. **Hemovac®** — Used to drain wound after extensive dissection or where moderate to large amounts of drainage are expected; has self-contained collecting device and manual suction

Figure 15—Hemovac®



Information Sheet

- f. **Jackson-Pratt®** — Used to drain wound where small to moderate amounts of drainage are expected; has self-contained collecting device and manual suction

Note: There are various modifications of a Hemovac® and a Jackson-Pratt® available from different companies.

Figure 16—Jackson-Pratt®



9. Common types of urethral catheters

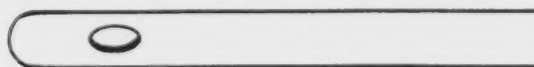
Note: Urethral catheters come in various French sizes from 6 Fr. to 30 Fr. with varying sizes of inflatable balloons measured in cc's.

a. Non-retaining

- (1) Robinson (plain) (red rubber) (Robnel)

Note: May have one or two holes at the end.

Figure 17

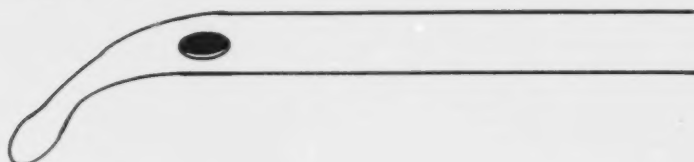


Information Sheet

(2) Coudé

Note: May also be self-retaining.

Figure 18



(3) Whistle

Figure 19



(4) Multieyed

Figure 20



b. Self-retaining (indwelling)

(1) Two-way (double channel) Foley

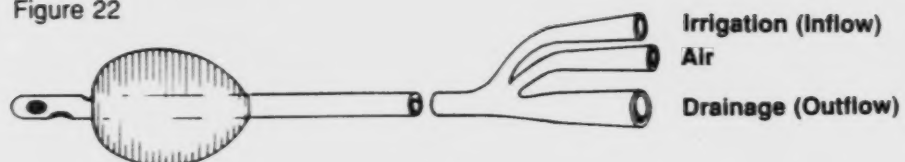
Figure 21



Information Sheet

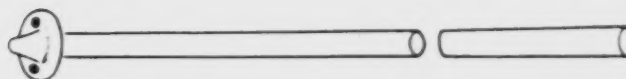
- (2) Three-way (triple lumen) Foley

Figure 22



- (3) Pezzer (mushroom)

Figure 23



- (4) Malecot (2- or 4-winged)

Figure 24



Drainage Systems and Tubes Unit 5-C

Assignment Sheet 1—Classify Types of Drainage Systems and Tubes According to Their Functions

Name _____ Overall Rating _____

Evaluation criterion	Rating
Classified equipment correctly	_____

Directions: Classify the following drainage mechanisms and tubes according to their function by placing an "A", "B", or "C" in the space provided.

- | | |
|------------------------|-------------|
| _____ 1. Levine | A. Tubes |
| _____ 2. Malecot | B. Drain |
| _____ 3. Coudé | C. Catheter |
| _____ 4. Cigarette | |
| _____ 5. Sump | |
| _____ 6. Nasal Airway | |
| _____ 7. Penrose | |
| _____ 8. Two-Way Foley | |
| _____ 9. Tracheostomy | |
| _____ 10. Hemovac® | |
| _____ 11. Pezzer | |
| _____ 12. Robnel | |
| _____ 13. Cantor | |
| _____ 14. Whistle | |
| _____ 15. Endotracheal | |

Drainage Systems and Tubes Unit 5-C

Job Sheet 1—Connect a Hemovac®

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Work is neat and secure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your operating field prepared to simulate an actual operating room setting. Use a mannequin or a student volunteer as the patient.

A. Equipment and materials

Sterile saline
Hemovac® evacuator
Dressing material
Tape and scissors
Scrub, surgeon, and patient

B. Procedure

- ☐ 1. Cleanse area around drain exit site.
- ☐ 2. Unwind tubing on Hemovac®.
- ☐ 3. Pass needle end of tubing to surgeon who will insert the drain in the patient.
- ☐ 4. Connect small drain tubing to large tubing.
- ☐ 5. Cut tip of tubing to appropriate tip size.
- ☐ 6. Insert cut tubing into Hemovac's® suction port.

Job Sheet 1

- ☐ 7. Compress unit on flat surface.

Figure 1



- ☐ 8. Close port on suction unit.

Figure 2



- ☐ 9. Secure drain by taping to patient.
- ☐ 10. Secure Hemovac® unit by loosely taping near dressing if required.

Evaluator's comments: _____

Drainage Systems and Tubes Unit 5-C

Job Sheet 2—Connect a Jackson-Pratt®

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Work is neat and secure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your operating field prepared to simulate an actual operating room setting. Use a mannequin or a student volunteer as the patient.

A. Equipment and materials

Sterile saline
 Jackson-Pratt® drain with collection bulb
 Dressing material
 Tape and scissors
 Scrub, surgeon, and patient

B. Procedure

- ☐ 1. Cleanse area around incision and drain.
- ☐ 2. Connect drain to collection unit.
- ☐ 3. Compress collection bulb.

Job Sheet 2

- ☐ 4. Close port on collection bulb.

Figure 1



- ☐ 5. Apply dressing to incision and around drain.
- ☐ 6. Tape drain securely.
- ☐ 7. Loosely tape collection bulb to dressing if required.

Evaluator's comments: _____

Drainage Systems and Tubes

Unit 5-C

Job Sheet 3—Connect a Chest Tube to a Closed Drainage System

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Work is neat and secure	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your operating field prepared to simulate an actual operating room setting. Use a mannequin or a student volunteer as the patient.

A. Equipment and materials

Sterile saline
 Pleur-evac® container or other closed drainage system
 Syringe—60 cc irrigating
 Sterile water
 Connecting tubing
 Straight connector
 Dressing material
 Tape and scissors
 Two clamps
 Scrub and patient

B. Procedure

- ☐ 1. Cleanse incision and chest tube insertion site.
- ☐ 2. Using irrigating syringe and sterile water, fill underwater seal chamber to appropriate level according to package directions.

Note: This may be filled by circulator.

- ☐ 3. Place straight connector between chest tube and connecting tubing.

Job Sheet 3

- ☐ 4. Attach connecting tubing to Pleur-evac® if suction is to be used.
- ☐ 5. Tape all connections securely.
- ☐ 6. Apply dressing to insertion site.

Note: Keep Pleur-evac® **below** chest level.

CAUTION: Should the bottle break or the chest tube become disconnected, apply two clamps to the tubing.

Evaluator's comments: _____

Syringes and Hypodermic Needles

Unit 6-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to distinguish between types of syringes and their uses, and demonstrate the ability to fill an irrigating syringe, draw up medication, and receive medication onto the sterile field. The student should demonstrate these competencies by completing the assignment and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match terms related to syringes and hypodermic needles with their correct definitions.
2. Discuss uses for syringes.
3. Select true statements concerning characteristics of syringes.
4. Identify the parts of a syringe.
5. Complete statements concerning types of irrigating syringes.
6. Identify types of injecting/aspirating syringes.
7. Distinguish between types of injecting/aspirating syringe tips.
8. Identify the parts of a hypodermic needle.
9. Select true statements concerning hypodermic needles.
10. Complete statements concerning the care and handling of syringes and hypodermic needles.
11. Read syringe calibrations. (Assignment Sheet 1)
12. Fill an irrigating syringe. (Job Sheet 1)
13. Draw up medication held by a circulator. (Job Sheet 2)
14. Receive medication onto sterile field. (Job Sheet 3)

Syringes and Hypodermic Needles

Unit 6-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make transparencies from the transparency masters included with this unit. These appear in the teacher edition only and are designed to be used with the following objectives:

TM 1—Parts of a Syringe (Objective 4)
TM 2—Types of Syringes (Objective 6)
TM 3—Parts of a Hypodermic Needle (Objective 8)
5. Obtain films, videotapes, and other resources to supplement instruction of this unit.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluating Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form, which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the assignment sheet. Review criteria for evaluation of this activity.
12. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Suggested Activities

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Record assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce this unit have on display the various types of syringes, needles, and medication containers discussed in this unit.
2. Discuss the uses of various types of syringes and types of tips available for each.
3. Show examples of large and small hypodermic needles, and discuss their corresponding gauge numbers.
4. Contact syringe and needle manufacturers for current information about their products. They may be able to provide samples of their products and brochures. Emphasize those commonly used in surgery.
5. Explore with the students the implications of inaccurately reading syringe calibrations.
6. Obtain copies of area hospitals' operating room policies and procedures manuals for preparing, receiving, and administering medications.
7. Discuss with the students any guidelines that differ from the information provided in this unit.
8. Obtain a copy of the latest OSHA guidelines and discuss with the students those guidelines that pertain to the preparation and administration of medications.

Suggested Activities

9. Remind students that injection/aspiration needles are sharps and should be included in all counts.
10. Have students wear sterile gloves and/or surgical attire when practicing the job sheets for safety and to better simulate the actual operating room setting.
11. Discuss and demonstrate the correct procedure for transferring sterile needles onto the field.
12. Discuss and demonstrate the correct procedure for mixing medications with irrigating fluids, and have students practice this procedure.

Note: All discussion activities related to work emphasize **communication skills and influence skills**.

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nursing, Inc., 1992.
2. Atkinson, Lucy Jo. *Berry & Kohn's Operating Room Technique*, 7th ed. St. Louis: Mosby Year Book, Inc., 1992.
3. Centers for Disease Control. "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers." A Response to P>L> 100-607, The Health Omnibus Programs Extension Act of 1988.
4. Centers for Disease Control. "Update: Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and Other Bloodborne Pathogens in Health-Care Settings." *Morbidity and Mortality Weekly Report* 37. (June 24, 1988)
5. Decker, Michael D. "The OSHA Bloodborne Hazard Standard." *Infection Control and Hospital Epidemiology*, Vol. 13, #7, 1992.
6. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Sanders Company, 1986.
7. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the patient in Surgery*, 9th ed. St. Louis: Mosby Year Book, Inc., 1991.

Suggested Activities

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

- Yes—Can perform job with no additional training.
- No—Is unable to perform job satisfactorily.

Syringes and Hypodermic Needles
Unit 6-C

Answers to Assignment Sheet 1

- a. 2.8 cc.
- b. 74 units
- c. .66 cc.
- d. 1.2 cc.
- e. .7 cc.

884

Syringes and Hypodermic Needles
Unit 6-C

Answers to Written Test

1. a. 6 d. 10 g. 3
 b. 5 e. 4 h. 9
 c. 1 f. 7 i. 8
2. Any two of the following:
 - a. For irrigation of the wound
 - b. For aspiration of fluids
 - c. For injection of medications or local anesthetics
3. a. T d. F
 b. F e. F
 c. T
4. a. Tip
 b. Barrel
 c. Calibrations
 d. Flange
 e. Plunger
5. a. (1) Rubber
 (2) Irrigation
 (3) 120 cc.
 b. (1) One
 (2) Small
6. a. Tuberculin
 b. Control
 c. Insulin
 d. Standard
7. a. P d. P
 b. P d. L
 c. L
8. a. Point
 b. Lumen
 c. Cannula
 d. Hub
 e. Flange

Answers to Written Test

- | | | | | | | | | |
|----|----|---|----|---|----|---|----|---|
| 9. | a. | T | d. | F | g. | T | j. | T |
| | b. | T | e. | F | h. | F | k. | F |
| | c. | F | f. | T | i. | F | l. | F |
- 10.
- | | |
|----|--------------------------------------|
| a. | Aseptic |
| b. | End |
| c. | Glass |
| d. | Labeled |
| e. | Pipe cleaners or appropriate brushes |
| f. | Sideways |
| g. | Entirety |
| h. | Hospital policy and procedure |

Syringes and Hypodermic Needles Unit 6-C

Written Test

Name _____

Score _____

1. Match the terms on the right with the correct definitions.

- | | | |
|----------|---|----------------|
| _____ a. | Rib or rim for attachment to another object | 1. Ampule |
| _____ b. | Small tube for insertion into a body cavity, duct, or vessel | 2. Barrel |
| _____ c. | Hermetically sealed, small bulbous glass vessel that holds a solution for hypodermic injection | 3. Bevel |
| _____ d. | Thin wire inserted into a catheter to maintain rigidity or into a hollow needle to maintain patency | 4. Calibration |
| _____ e. | Set of graduations to indicate value | 5. Cannula |
| _____ f. | Diameter of a slender object such as a wire or hypodermic needle | 6. Flange |
| _____ g. | Slant or incline that one surface makes with another when not at right angles | 7. Gauge |
| _____ h. | Space within a vessel, intestine, or other tubular object | 8. Hypodermic |
| _____ i. | Beneath the skin | 9. Lumen |
| | | 10. Stylet |
| | | 11. Vial |

2. Discuss two uses for syringes.

a. _____

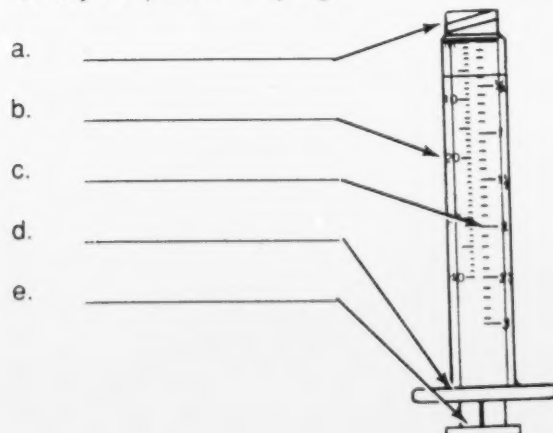
b. _____

Written Test

3. Select true statements concerning characteristics of syringes by placing a "T" or "F" next to the true or false statements.

- _____ a. All basic syringes are calibrated in cubic centimeters (cc.)
- _____ b. Syringes are available in three sizes — 1, 25, and 50 cc.
- _____ c. Syringes are available in two basic materials — plastic and glass.
- _____ d. Syringes for irrigation are used with needles (various sizes).
- _____ e. Syringes for injection or aspiration are used without needles.

4. Identify the parts of a syringe.



5. Complete the following statements concerning types of irrigating syringes by filling in the blanks with the correct answers.

- a. Bulb with barrel

- (1) Is a plastic or _____ bulb attached to a tapered or blunt end barrel
- (2) Is used with one-hand control for _____ during many procedures
- (3) Is available in various capacity sizes — The largest holds approximately _____

883

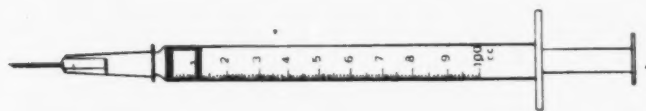
Written Test

b. Bulb without barrel

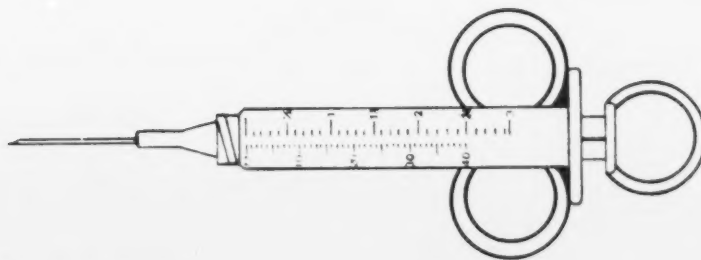
(1) Is a _____-piece bulb that tapers to a blunt end

(2) Is used to irrigate _____ structures such as the ear

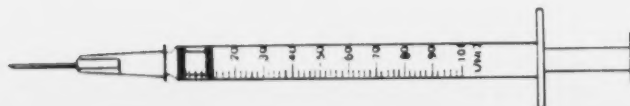
6. Identify the types of injecting/aspirating syringes below.



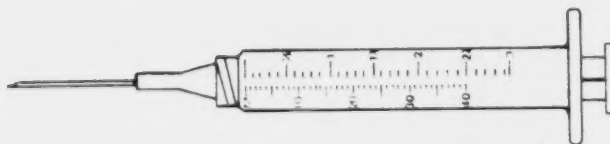
a. _____



b. _____



c. _____



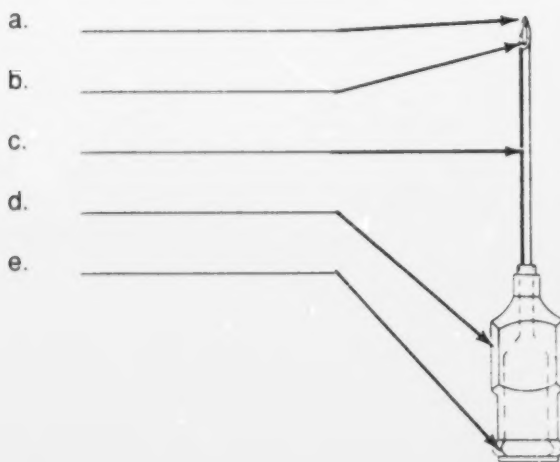
d. _____

Written Test

7. Distinguish between types of injecting/aspirating syringe tips by placing an "L" for Luer-Lok tip or a "P" for plain tip next to their characteristics.

- _____ a. Has a tip that slips over the needle hub
- _____ b. Is used with some catheter adapters and rubber connections for aspiration
- _____ c. Has a tip that securely locks over the needle hub
- _____ d. May not give a secure connection
- _____ e. Is used whenever pressure needs to be exerted for injection or aspiration

8. Identify the parts of a hypodermic needle.



9. Select true statements concerning hypodermic needles by placing a "T" or "F" next to the true or false statements.

- _____ a. Hypodermic needles may be used to withdraw medication from a vial, to inject medication into tissue, or to withdraw body fluids.
- _____ b. Hypodermic needle diameters are indicated by a gauge number.
- _____ c. Gauge numbers range from 2 to 14.
- _____ d. Small needles (in diameter) have small gauge numbers.
- _____ e. Large needles (in diameter) have large gauge numbers.

Written Test

- _____ f. The larger the needle, the smaller the gauge number; the smaller the needle, the larger the gauge number.
 - _____ g. 14-18 gauge needles may be used for aspiration of body fluids and transfusion of blood or blood components.
 - _____ h. Needles range in length from $\frac{1}{4}$ " to 2".
 - _____ i. Extra long needles are used for intradermal or subcutaneous injections such as for injecting a local anesthetic.
 - _____ j. Longer needles of medium gauge are used for intravenous or intramuscular injections.
 - _____ k. Small, short needles may be used to enter a body cavity.
 - _____ l. Spinal needles are medium length and have a stylet which fits through the cannula and slips in place.
10. Complete the following statements concerning the care and handling of syringes and hypodermic needles by filling in the blanks with the correct answers.
- a. _____ technique must be used when handling syringes and needles. The needle, the tip and hub, the inside of the barrel, and the plunger **must** be kept sterile.
 - b. Be careful not to touch the plunger except at the _____. Any contamination of the plunger will contaminate the solution or medication as the plunger goes down the barrel.
 - c. Be careful when using _____ syringes to not drop the plunger. It shatters easily.
 - d. If two or more syringes of the same type, but containing different solutions or medications, are being used, they must be properly _____ to prevent confusion.
 - e. If the syringe is reusable, the plunger must be removed in order to clean the barrel using _____.
 - f. For sterilization, the syringe must be lying _____ with the plunger removed.
 - g. If a needle is broken, it must be accounted for in its _____.
 - h. Dispose of used needles properly according to _____.

*Permission to duplicate this test is granted.

Syringes and Hypodermic Needles
Unit 6-C

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Read Syringe Calibrations Rating _____

Comments: _____

Job Sheet 1—Fill an Irrigating Syringe Rating _____

Comments: _____

Job Sheet 2—Draw Up Medication Held by Circulator Rating _____

Comments: _____

Job Sheet 3—Receive Medication Onto Sterile Field Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

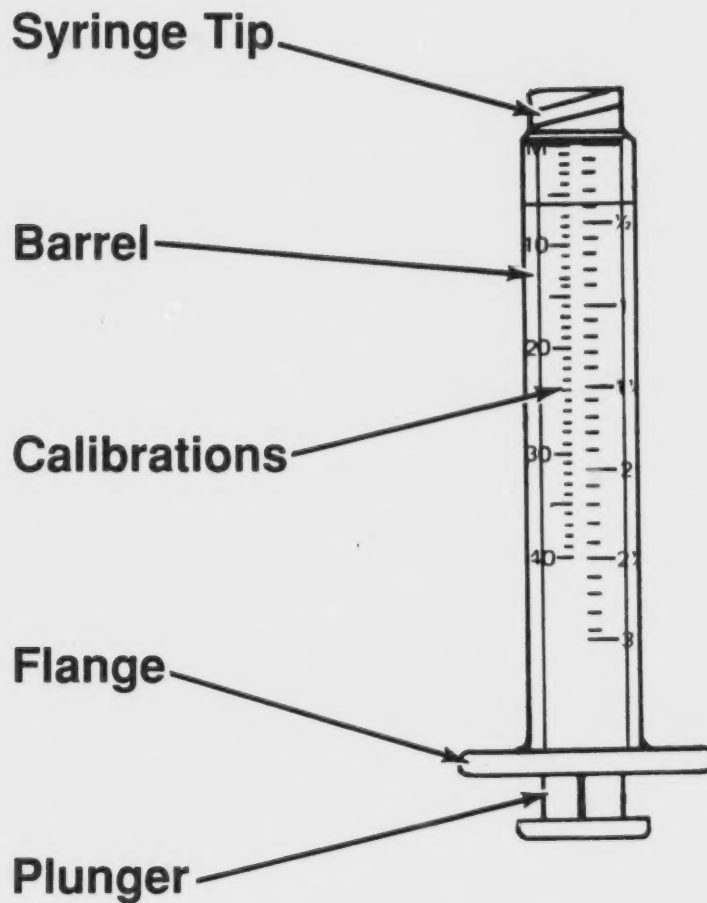
Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

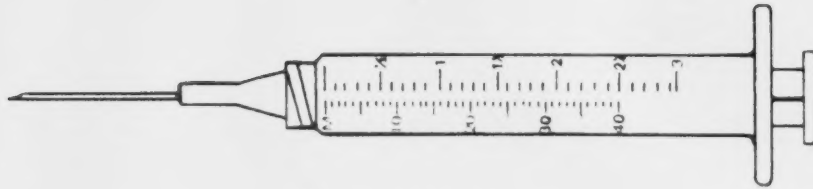
892

Parts of a Syringe

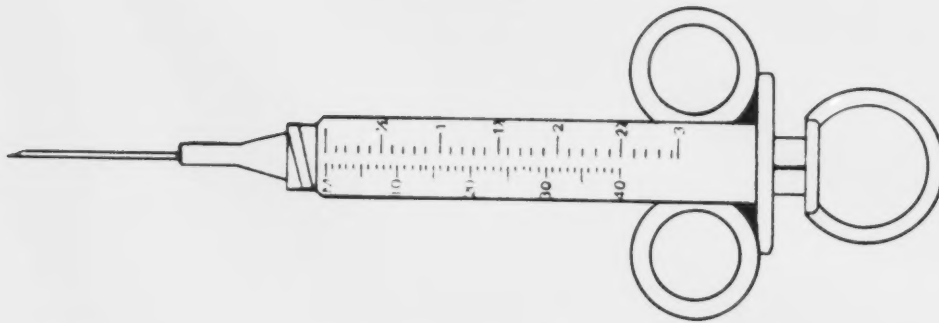


893

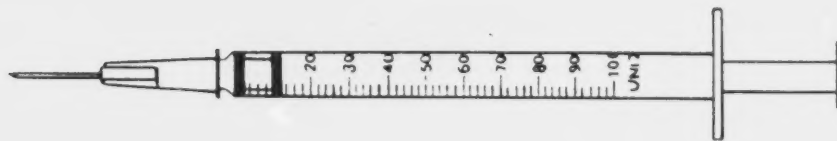
Types of Syringes



Standard



Control



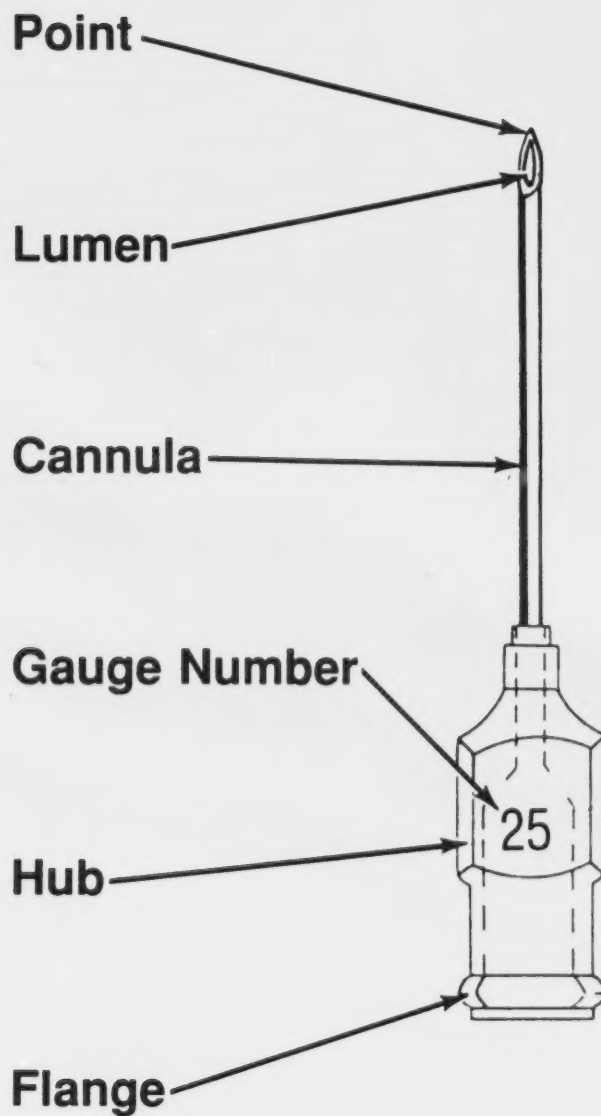
Insulin



Tuberculin

894

Parts of a Hypodermic Needle



895

Syringes and Hypodermic Needles Unit 6-C

Information Sheet

1. Terms and definitions

- a. **Ampule** — Hermetically sealed, small bulbous glass vessel that holds a solution for hypodermic injection
- b. **Barrel** — Cylindrical part of a syringe used to hold and measure the syringe's content (solution or medication)
- c. **Bevel** — Slant or incline that one surface makes with another when not at right (90°) angles; used when referring to the point of hypodermic needles

Example:



- d. **Calibration** — Set of graduations to indicate value
- e. **Cannula** — Small tube for insertion into a body cavity, duct, or vessel
- f. **Flange** — Rib or rim for attachment to another object
- g. **Gauge** — Diameter of a slender object such as a wire or hypodermic needle
- h. **Hypodermic** — Beneath the skin
- i. **Lumen** — Space within a vessel, intestine, or other tubular object
- j. **Stylet** — Thin wire inserted into a catheter to maintain rigidity or into a hollow needle to maintain patency
- k. **Vial** — Small glass bottle containing medication

2. Uses for syringes

- a. For irrigation of the wound
- b. For aspiration of fluids
- c. For injection of medications or local anesthetics

3. Characteristics of syringes

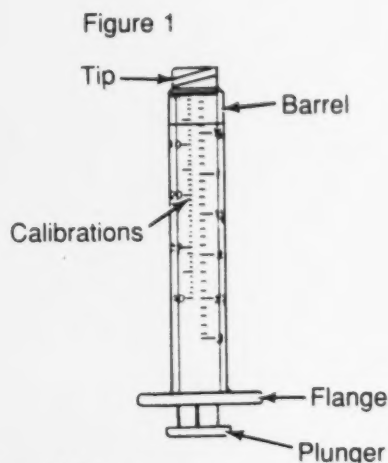
- a. All basic syringes are calibrated in cubic centimeters (cc.)
- b. Syringes are available in a variety of sizes — 1 to 100 cc.

Information Sheet

- c. Syringes are available in two basic materials:
 - (1) Plastic — Disposable
 - (2) Glass — Reusable
- d. Syringes for irrigation are used without needles.
- e. Syringes for injection or aspiration are used with needles (various sizes).

4. Parts of a syringe

- a. Tip
- b. Barrel
- c. Calibrations
- d. Flange
- e. Plunger



5. Types of irrigating bulb syringes

- a. Bulb with barrel (two-piece)

Example: Asepto®

- (1) Is a plastic or rubber bulb attached to a tapered or blunt end barrel
- (2) Is used with one-hand control for irrigation during *many* procedures
- (3) Is available in various capacity sizes — The largest holds approximately 120 cc.

- b. Bulb without barrel (one-piece)

- (1) Is a one-piece bulb that tapers to a blunt end
- (2) Is used to irrigate small structures such as the ear

Information Sheet

6. Types of injecting/aspirating syringes

a. Standard

- (1) Used for aspiration and for administering many medications
- (2) Calibrated in cc. and tenths of cc.
- (3) Sizes range from 2½ cc. to 50 cc.

Figure 2—Standard syringe

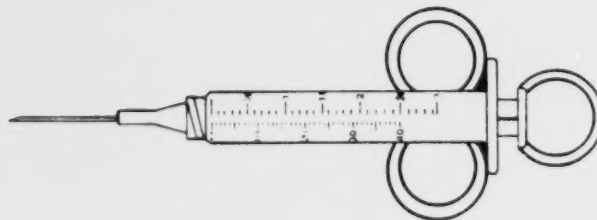


b. Control

Note: A control syringe is a variation of a standard syringe.

- (1) Used for aspiration and for administering many medications
- (2) Calibrated in cc. and tenths of cc.
- (3) The barrel has two finger rings and the plunger has a thumb ring.
 - (a) Rings are usually permanently bonded.
 - (b) Rings allow for one handed use.
- (4) Disposable sizes range from 12 cc. to 20 cc.
- (5) Reusable sizes range from 3 cc. to 20 cc.

Figure 3—Control syringe



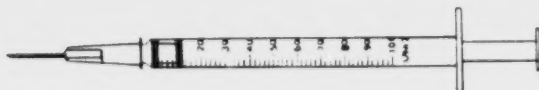
Information Sheet

c. Insulin

- (1) Used for administering insulin
- (2) Calibrated in units, primarily U 100

Note: The syringe used in giving insulin must be marked to correlate with the strength of insulin being used. At this time, the use of only one strength of insulin, U 100, is being recommended to prevent miscalculations, overdosages, and underdosages of insulin. There are some patients who cannot tolerate the concentrated strength of U 100 and will receive U 40. Color-coded syringes are used for U 40.

Figure 4—Insulin syringe



d. Tuberculin

- (1) Used for administering doses less than 1 cc.
- (2) Calibrated in tenths and hundredths of cc.
- (3) Commonly used to measure tuberculin and antigens for allergies

Figure 5—Tuberculin syringe



7. Types of injecting/aspirating syringe tips

a. Luer-Lok tip

- (1) Has a tip that securely locks over the needle hub
- (2) Is used whenever pressure needs to be exerted for injection or aspiration

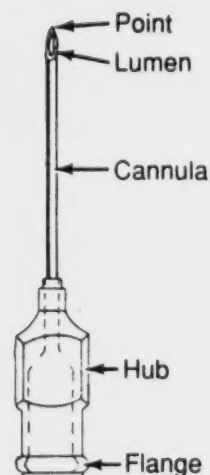
Information Sheet

- b. Plain (slip) tip
 - (1) Has a tip that slips over the needle hub
 - (2) May not give a secure connection
 - (3) Is used with some catheter adapters and rubber connections for aspiration

8. Parts of a hypodermic needle

- a. Point
- b. Lumen
- c. Cannula
- d. Hub
- e. Flange

Figure 6



9. Hypodermic needles

- a. Hypodermic needles may be used to withdraw medication from a vial, to inject medication into tissue, or to withdraw body fluids.
- b. Hypodermic needle diameters are indicated by a gauge number.
 - (1) Gauge numbers range from 12 to 30.
 - (2) Small needles (in diameter) have large gauge numbers.
Example: 27 gauge needle is a small needle.
 - (3) Large needles (in diameter) have small gauge numbers.
Example: 12 gauge needle is a large needle.
 - (4) The larger the needle, the smaller the gauge number; the smaller the needle, the larger the gauge number.
Example: 27 gauge needle is smaller than a 16 gauge needle.

Information Sheet

- c. 14-18 gauge needles may be used for aspiration of body fluids and transfusion of blood or blood components.
- d. Needles range in length from $\frac{1}{2}$ " to $4\frac{1}{2}$ ".
 - (1) Small, short needles are used for intradermal or subcutaneous injections such as for injecting a local anesthetic.
Example: 27 g. $\frac{1}{2}$ inch
 - (2) Longer needles of medium gauge are used for intravenous or intramuscular injections.
Example: 20 g. $1\frac{1}{2}$ inch
 - (3) Extra long needles may be used to enter a body cavity.
- e. Spinal needles are long ($3\frac{1}{2}$ " to $4\frac{1}{2}$ ") and have a stylet which fits through the cannula and locks in place to prevent the leakage of spinal fluid.
- f. Filter needles are available for aspiration of solutions from an ampule.

Note: Before solution is injected, the filter needle is removed from syringe and replaced with a standard needle.

10. Care and handling of syringes and hypodermic needles

- a. Aseptic technique must be used when handling syringes and needles. The needle, the tip and hub, the inside of the barrel, and the plunger **must** be kept sterile.
- b. Be careful not to touch the plunger except at the end. Any contamination of the plunger will contaminate the solution or medication as the plunger goes down the barrel.

Note: Glove powder can act as a contaminant.

- c. Be careful when using glass syringes to not drop the plunger. It shatters easily.
- d. If two or more syringes of the same type, but containing different solutions or medications, are being used, they must be properly labeled to prevent confusion.
- e. If the syringe is reusable, the plunger must be removed in order to clean the barrel using pipe cleaners or appropriate brushes.
- f. For sterilization, the syringe must be lying sideways with the plunger removed.

Information Sheet

- g. If a needle is broken, it must be accounted for in its entirety.
- h. The Occupational Safety and Health Administration (OSHA) regulations of Bloodborne Hazard Standards published in December 1991 is very specific concerning the care and handling of sharp objects. OSHA has made the following rulings concerning contaminated and uncontaminated needles:
 - (1) Only needles that are uncontaminated may be removed from the syringe or recapped.

Note: Needles that have only entered a medication vial or a clean injection proximal to the patient are considered uncontaminated.
 - (2) Bending, shearing, breaking, or recapping of contaminated needles is strictly prohibited.
 - (3) Contaminated needles may only be recapped if you can demonstrate that no alternative is feasible or that such action is required by a specific procedure.
 - (4) If recapping of a contaminated needle is necessary, it must be accomplished by a mechanical device or through a one-handed scoop technique.

Note: Using a "needle block" or a clamp to recap a needle is considered a mechanical device.
 - (5) Contaminated needles must be disposed of in a container that is closable, puncture-resistant, leak-proof on sides and bottom, and labeled or color coded.
- i. Always check the hospitals' written policy and procedures concerning the handling and disposal of sharps and syringes.

Syringes and Hypodermic Needles **Unit 6-C**

Assignment Sheet 1—Read Syringe Calibrations

Name _____ Overall Rating _____

Evaluation criterion	Rating
Answers are correct	_____

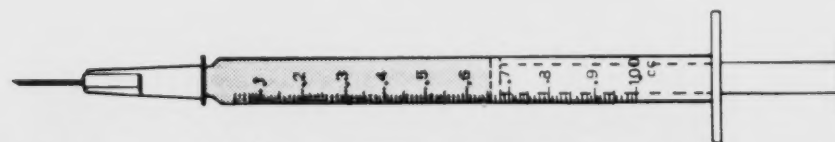
Directions: Read the following syringe calibrations, and place your answers in the blanks provided.



a. _____



b. _____

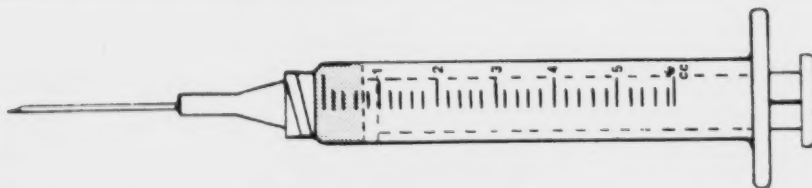


c. _____

Assignment Sheet 1



d.



e.

Syringes and Hypodermic Needles Unit 6-C

Job Sheet 1—Fill an Irrigating Syringe

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies	_____
Followed directions	_____
Performed each step in appropriate sequence	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your back table and Mayo stand prepared to simulate an actual operating room setting.

A. Supplies and materials

Irrigating bulb syringe (Asepto®) — 120 cc. size
Irrigating solution (saline) — 150 cc.
Basin

B. Procedure

- ☐ 1. Pour the irrigating solution in a basin.
- ☐ 2. Check the temperature of the solution. It should be warm, not hot.
- ☐ 3. Depress the bulb.

Job Sheet 1

- ☐ 4. Submerge the end of the syringe in the solution.

Figure 1



- ☐ 5. Release the depressed bulb — It will inflate the solution, but not totally.
- ☐ 6. Tilt syringe tip upwards so air will rise to the top.

Figure 2



- ☐ 7. Again depress the bulb, submerge its end in the solution, and release to totally fill the bulb to 120 cc.

Note: The surgical technologist should keep a mental track of the amount of irrigating solution used so that blood loss can be accurately determined.

Job Sheet 1

Evaluator's comments: _____

Syringes and Hypodermic Needles Unit 6-C

Job Sheet 2—Draw Up Medication Held By Circulator

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your back table and Mayo stand prepared to simulate an actual operating room setting.

A. Supplies and materials

Standard Luer-Lok syringe
 Appropriately sized hypodermic needle
 Vial of solution or medication
 Disinfectant solution (such as alcohol)
 Cotton balls or sponges
 Clamp
 Circulator
 Scrub person, gowned and gloved

B. Procedure

- ☐ 1. Assemble syringe.
- ☐ 2. Place needle on syringe. Check needle for burrs. Discard if defective.
- ☐ 3. As circulator shows you the vial, verify **aloud** the name, amount of medication or solution, and expiration date.
- ☐ 4. As circulator is wiping the rubber stopper with a disinfectant, you can draw air equal to the desired dosage into the syringe.

Job Sheet 2

- ☐ 5. After circulator inverts the vial, insert needle into rubber stopper.

Note: As you exert a force for inserting the needle, the circulator will exert an opposing force.

Figure 1



- ☐ 6. Inject air from syringe into vial.
- ☐ 7. Withdraw desired amount, making sure needle is below level of solution.
- ☐ 8. Withdraw needle from rubber stopper.

Caution: Do not touch the needle since it is considered unsterile.

- ☐ 9. Using one of the following methods, hand off the needle to the circulator.

Caution: Be careful not to contaminate yourself.

- a. If the needle has a cap, replace cap, unscrew it, and hand the unsterile needle off field to circulator.
- b. If the needle has no cap, attach a clamp to the hub of the needle, untwist it, and hand the unsterile needle and clamp off field to circulator.

Job Sheet 2

Evaluator's comments: _____

Syringes and Hypodermic Needles **Unit 6-C**

Job Sheet 3—Receive Medication Onto Sterile Field

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled necessary supplies and equipment	_____
Followed directions	_____
Performed each step in appropriate sequence	_____
Followed aseptic technique	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your back table and Mayo stand prepared to simulate an actual operating room setting.

A. Supplies and materials

Medication
Medicine cup or small basin
Small table
Appropriate label
Circulator
Scrub person, gowned and gloved

B. Procedure

- ☐ 1. Place a medicine cup or small basin at the corner edge of the table, or hold in hand.
- ☐ 2. As circulator shows you the medication vial, verify **aloud** the name, dosage, amount of medication, and expiration date.

Note: Depending on the medication, the circulator may need to draw up the medication into a syringe.

Job Sheet 3

- ☐ 3. Watch as circulator distributes the medication to you by pouring directly from the medication vial or by injecting medication from a syringe into the medicine cup or basin.

Figure 1



- ☐ 4. As circulator again shows you the medication vial, verify aloud the name, dosage, and amount of medication that you have received.
- ☐ 5. Label medication with name and dosage if more than one is being used.

Figure 2



- ☐ 6. Leave empty vial in room until completion of operative procedure.

Job Sheet 3

Evaluator's comments: _____

Sponge, Sharp, and Instrument Counts

Unit 7-C

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss when, who, and how to perform sponge, sharp, and instrument counts. The student should demonstrate these competencies by completing the assignment sheet and job sheet and by scoring a minimum of 85 percent on the unit written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Discuss the purposes of sponge, sharp, and instrument counts.
2. Distinguish between true and false statements concerning the establishment of count policy and procedure.
3. Select articles that should be included in a sponge, sharp, and instrument count.
4. Distinguish between true and false statements concerning when counts are to be performed.
5. Discuss the procedure required for the omission of counts.
6. Complete statements concerning responsibilities for counts and their documentation.
7. Complete statements concerning safety rules for achieving accurate counts of sponges, sharps, and instruments.
8. Complete statements concerning the procedure required in sponge counts.
9. Complete statements concerning the procedure required in sharp counts.
10. Complete statements concerning the procedure required in instrument counts.
11. Complete statements concerning the procedure required for an incorrect count.
12. Complete a count sheet. (Assignment Sheet 1)
13. Perform a sponge, sharp, and instrument count. (Job Sheet 1)

Sponge, Sharp, and Instrument Counts Unit 7-C

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Make a transparency from the transparency master included with this unit. This appears in the teacher edition only and is designed to be used with the following objective:

TM 1—Count Sheet (Objective 6)

5. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
6. Develop teaching plan. Adjust for different learning styles.
7. Review "Instructions for Evaluation Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form, which follows the written test section.

Delivery and Application

8. Provide students with unit of instruction.
9. Discuss unit and specific objectives.
10. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
11. Discuss the assignment sheet. Review criteria for evaluation of this activity.
12. Discuss and demonstrate the job sheet. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of this activity.

Suggested Activities

Evaluation

13. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
14. Make copies of the written test. Add or modify test items as needed.
15. Give written test.
16. Compile assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
17. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce this unit, make a display of the various articles that are included in sponge, sharp, and instrument counts.
2. Discuss with the students the legal implications of accurate sponge, sharp, and instrument counts and their proper documentation. **Communication skills, influence skills**
3. Invite a guest speaker from an area hospital's Risk Management department to discuss with students past incidents where counts were incorrect.
4. Provide students with copies of local hospitals' written policy and procedure guidelines for counts.
5. Discuss any local hospitals' policy and procedure on counts that may vary from the guidelines for counts.
6. Use Transparency 1 as an example of a count sheet. This may also be used for demonstration purposes when showing proper documentation of counts. Use an erasable overhead pen.
7. Provide students with examples of count sheets from local hospitals. Point out difference and similarities.

Suggested Activities

8. Explore with the students any guidelines from an institution that may be outdated. Ask them how they would handle that situation if they were working there. **Creative thinking skills, critical thinking skills, and communication skills**
9. Additional suggestion for Job Sheet 1 — Encourage students to work in groups. Have them role play with someone being the circulating person, scrub person, and surgeon performing counts when necessary. **Teamwork skills**
10. Arrange for the school's media specialist to film the students while they perform counts. After viewing, have the students critique their performances. **Critical thinking skills and personal management skills**

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nursing, Inc., 1992.
2. Meeker, Margaret Huth and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: C. V. Mosby — Year Book, Inc., 1991.
3. Atkinson, Lucy Jo. *Berry and Kohn's Operating Room Technique*, 7th ed. St. Louis: C. V. Mosby — Year Book, Inc., 1992.
4. Spry, C. *Essentials of Perioperative Nursing: Self-Learning Guide*. Rockville, MD: Aspen Publishers, 1988.
5. Decker, Michael D. "The OSHA Bloodborne Hazard Standard." *Infection Control and Hospital Epidemiology*, Vol. 13, No. 7, 1992.

Suggested Supplemental Resources

1. Books/Articles
 - a. Corder, Jacqueline W. *Logic of Operating Room Nursing*, 3rd ed. Oradell, NJ: Medical Economics Company, Inc., 1984.
 - b. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Saunders Company, 1986.
 - c. Roth, R. A. "Counting Sponges, Sharps, and Instruments." *AORN Journal*, 33 (Feb. 1981) 598-602.

Suggested Activities

- d. Centers for Disease Control. "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers." A Response to P>L> 100-607, The Health Omnibus Programs Extension Act of 1988.
 - e. Centers for Disease Control. "Recommendations for Prevention of HIV Transmission in Health-Care Settings. *Morbidity and Mortality Weekly Report* 25 (August 21, 1987).
 - f. Centers for Disease Control. "Update: Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus, and Other Bloodborne Pathogens in Health-Care Settings." *Morbidity and Mortality Weekly Report* 37 (June 24, 1988).
2. Videotape—*Sponge, Needle, and Instrument Counts*, DG-1268. Available from:

Ciné-Med Distribution Center
Davis+Geck Video Library
P.O. Box 745
Woodbury, CT 06898
(800) 633-0004

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Suggested Activities

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

Yes—Can perform job with no additional training.

No—Is unable to perform job satisfactorily.

Sponge, Sharp, and Instrument Counts **Unit 7-C**

Answers to Assignment Sheet 1

OPERATING ROOM COUNT SHEET NAME: _____

DATE: _____

INSTRUMENTS	FIRST COUNT	ADD	OFF FIELD	FINAL	SHARPS			
Knife Handles	5			5	Needles		Blades	
Sponge Forceps	4			4	Initial:	Initial:		
Scissors	4			4	21	4		
Tissue Forceps	8			8	Add:	Add:		
Needleholders	5			5	8			
Mosquitoes - Str					2			
Mosquitoes - Cvd					Final:	Final:		
Pears		2		2	31	4		
Ochsners	6			6	SPONGES			
Allis	2			2	Cottonoids	Peauits	4x4s	Laps
Babcocks	4			4	Initial:	5	10	10
Crile - Str		5		5	Add:		10	5
Crile - Cvd								5
Kelly	24			24	Final:	5	20	20
Tonsils	3			3				
Rt. Angles		2		2				
Suction & Parts	1			1				
Towel Clamps	12			12				
Richardsons	4			4				
Army-Navy	2			2				
Deavers	3			3				
Malleables	3			3	COUNTS: Correct ☒			
Balfour					Incorrect ☐			
(2 pr. lateral, 2 center blades, & screw)	1			1	Circulator:			
Additional					Scrub Person:			
WOLKMAN RAKE		2		2	I M Best, ST			

Sponge, Sharp, and Instrument Counts Unit 7-C

Answers to Written Test

1. Any two of the following:
 - a. To protect the patient from the possibility of serious post-operative complications in the event that any sponge, sharp, or instruments were inadvertently left in the patient during a procedure
 - b. To protect yourself and your employer from legal liability
 - c. To keep instrument set(s) complete
2.
 - a. F—Individual hospital policies and procedures may vary slightly, but ethically, counts must be performed.
 - b. T
 - c. T
 - d. F—Policies and procedures should be reviewed and revised annually (every year).
 - e. F—Policy and procedure should follow recommended standards of practice established by the Association of Operating Room Nursing (AORN).
3. b, c, e, f, g, h, i, j, k, l, o, p, s
4.
 - a. F—On all operating procedures except when dictated by established count policy and procedure.
 - b. T
 - c. T
 - d. F—Before any part of a cavity or a cavity within a cavity.
 - e. T
 - f. T
 - g. F—Additional counts may be done whenever they are judged necessary by the surgeon, circulator, or scrub person.
5. Discussion should include (in student's own words):

The occurrence and reason for the occurrence is documented on the operative record by the circulator. An x-ray is taken at the end of the procedure. A count should be performed, if at all possible, when the opportunity presents itself during the case.
6.
 - a. Scrub person
 - b. Circulator
 - c. Audibly, viewing
 - d. Circulator
 - e. Names, titles
 - f. Circulator
 - g. Operative record, rationale
 - h. Discrepancies

Answers to Written Test

7. a. 3 f. 1 k. 1 p. 3
 b. 2 g. 1 l. 3 q. 4
 c. 4 h. 3 m. 2 r. 2
 d. 2 i. 4 n. 1 s. 4
 e. 3 j. 2 o. 4
8. a. Together
 b. Off, separately
 c. Circulator
 d. Kick bucket
 e. 5 or 10
 f. Laparotomy sponges
 g. Instruments
 h. Circulator
 i. Its own container
 j. Circulator
 k. Surgical field, Mayo stand, back table, off the field
 l. Surgeon
9. a. Suture
 b. Sharps
 c. Scrub person
 d. Wound closure
 e. Skin closure
10. a. Circulator and scrub person
 b. Circulator, scrub person
 c. Disassembled
 d. All sponges and sharps
 e. The count sheet
11. a. Immediately
 b. Circulator
 c. Circulator
 d. Scrub
 e. Surgeon
 f. An x-ray
 g. Circulator

Sponge, Sharps, and Instrument Counts
Unit 7-C

Written Test

Name _____ Score _____

1. Discuss at least two purposes of sponge, sharp, and instrument counts.

a. _____

b. _____

2. Distinguish between true and false statements concerning the establishment of count policy and procedure by placing a "T" in the blank if the statement is true or place an "F" in the blank if the statement is false. If the statement is false, use the space below each statement to write the statement correctly.

_____ a. Individual hospital policies and procedures may vary slightly, but ethically, counts do not have to be done.

_____ b. Count policy is initiated by the Operating Room Manager.

_____ c. Policy is approved by the administrator over the operating room, the surgery committee, the director of nursing service, and the hospital administration.

Written Test

_____d. Policies and procedures should be reviewed and revised every ten years.

_____e. Policy and procedure should follow recommended standards of practice established by the American Medical Association (AMA).

3. Select articles that should be included in a sponge, sharp, and instrument count by placing an "X" in the appropriate blanks if the article should be counted.

- _____a. Asepto® syringe
- _____b. Hypodermic needle
- _____c. #10 blade
- _____d. Marking pen
- _____e. Deaver retractor
- _____f. Surgical needles
- _____g. Clamp
- _____h. Cottonoid patties
- _____i. Four-by-fours
- _____j. Cautery needle tips
- _____k. Thumb forceps
- _____l. Safety pin
- _____m. Telfa® pad
- _____n. Culture tube
- _____o. Cherries

924

Written Test

- _____p. Laparotomy sponges
- _____q. Suture ties (ligatures)
- _____r. Wound drain
- _____s. Scissors
- _____t. Basin set

4. Distinguish between true and false statements concerning when counts are to be performed by placing a "T" in the blank if the statement is true or place an "F" in the blank if the statement is false. If the statement is false, use the space below each statement to write the statement correctly.

Counts are to be performed:

- _____a. On all operating procedures except neurosurgical procedures

- _____b. Prior to the beginning of a procedure

- _____c. As closure of wound begins

- _____d. After any part of a cavity or a cavity within a cavity is closed

- _____e. Whenever there is a permanent change in scrub and/or circulating personnel

925

Written Test

_____ f. As closure of skin begins

_____ g. As judged necessary only by the circulator

5. Discuss the procedure required for the omission of counts.

6. Complete the following statements concerning responsibilities for counts and their documentation by filling in the blanks with the correct answers.

- a. The _____ counts sponges, sharps, and instruments on the sterile field.
- b. The _____ counts sponges, sharps, and instruments off the sterile field.
- c. The count is done _____ together with the scrub and circulating person concurrently _____ each article as it is counted.
- d. The _____ records the count on the patient's operative record and/or the count sheet.
- e. _____ and _____ of personnel performing the counts are recorded on the patient's operative record and/or the count sheet.
- f. The _____ must sign the patient's operative record.

Written Test

- g. If a count is omitted or not completed, the incident must be recorded on the patient's _____ and _____ for the count omission.
- h. If count _____ occur, action(s) taken must be recorded on the patient's operative record.
7. Complete the following statements concerning safety rules for achieving accurate counts of sponges, sharps, and instruments. Circle the correct answer for each or write the correct numbers in the blanks.
- _____ a. All sponges used during a surgical procedure should be
- (1) Tagged
 - (2) Moist
 - (3) Radiopaque
- _____ b. Always count together audibly, with circulator and scrub person concurrently viewing each sponge, sharp, and instrument as it is _____
- (1) Used
 - (2) Counted
 - (3) Discarded
 - (4) Opened
- _____ c. Always keep various sizes of _____ separated during the procedure.
- (1) Needles
 - (2) Instruments
 - (3) Knife blades
 - (4) Sponges
- _____ d. Always place small dissectors on a/an _____
- (1) Sterile field
 - (2) Instrument
 - (3) Mayo stand
 - (4) Count pad
- _____ e. Never remove linen or trash container from the operating room until
- (1) Closure of the wound begins
 - (2) The circulating person approves
 - (3) All counts are verified

Written Test

- _____ f. Never allow a counted _____ to be taken from the operating room during a procedure.
- (1) Item
 - (2) Sponge
 - (3) Sharp
 - (4) Instrument
- _____ g. If the patient leaves the operating room with a counted sponge intentionally used as packing, the _____ and _____ of sponge(s) retained should be documented on the operative record.
- (1) Number and type
 - (2) Size and number
 - (3) Type and size
- _____ h. Used sponges should be _____
- (1) Disposed of as soon as possible
 - (2) Covered with a sterile towel
 - (3) Confined and contained
 - (4) Given to the anesthesiologist
- _____ i. Used sponges should be handled with _____
- (1) Gloves used for the prep
 - (2) Used instruments
 - (3) The circulator's permission
 - (4) Instruments and/or gloved hands
- _____ j. Sponges are removed from the sterile field to an imperviously lined _____
- (1) Trash bag
 - (2) Kick bucket
 - (3) Specimen container
- _____ k. Never take prepackaged sponge counts for granted. If package count is incorrect, isolate from the sterile field and _____
- (1) Do not use
 - (2) Remove from the operating room
 - (3) Place in a kick bucket

Written Test

- _____.l. Radiopaque sponges are _____ used for dressings.
- (1) Always
 - (2) Sometimes
 - (3) Never
- _____.m. Prep sponges are _____ and are kept isolated from the sterile field.
- (1) Contaminated
 - (2) Non-radiopaque
 - (3) X-ray detectable
 - (4) Very small
- _____.n. Never discard prep sponges in the _____
- (1) Kick bucket
 - (2) Trash container
 - (3) Operating room
- _____.o. Sharps are counted _____ throughout the procedure.
- (1) Only once
 - (2) Twice
 - (3) By the circulator
 - (4) Continually
- _____.p. Suture needles should be counted according to the number marked on the outer package and verified by the _____ and _____ when the package is opened.
- (1) Scrub and assistant
 - (2) Circulator and surgeon
 - (3) Scrub and circulator
 - (4) Scrub and surgeon
- _____.q. Broken sharps and broken or disassembled instruments are accounted for _____
- (1) When the case is over
 - (2) By the circulator
 - (3) On the count sheet
 - (4) In their entirety

Written Test

- _____ r. If either the scrub person or circulating person is relieved by another person during the operation, the incoming person should verify all counts before the person being relieved leaves the _____
- (1) Hospital
 - (2) Operating room
 - (3) Surgical area
- _____ s. Circulator and scrub personnel count all items in the following order:
- (1) Off field, Mayo stand, back table, surgical field
 - (2) Back table, Mayo stand, surgical field, off field
 - (3) Mayo stand, back table, surgical field, off field
 - (4) Surgical field, Mayo stand, back table, off field
8. Complete the following statements concerning the procedure required in sponge counts by circling the correct answers.
- a. Before surgery the scrub person and circulator count (separately, together) audibly and view each article as it is counted.
 - b. The scrub person holds sponges (on, off) the table, checks for radiopaque strip, and counts sponges (in groups, separately).
 - c. (Scrub person, Circulator) records number and type of sponges in units of 5 or 10 on the count sheet.
 - d. During surgery scrub person discards used sponges in imperviously lined (trash container, kick bucket).
 - e. Scrub person keeps small dissectors contained on the sterile field, grouping in units of (5 or 10, 15 or 20) as they were prepackaged.
 - f. Scrub person replaces gauze sponges with (dissectors, laparotomy sponges) as cavity is opened.
 - g. Scrub person places gauze sponges and small dissectors on (instruments, Mayo stand) while cavity is open giving them to the surgeon and/or assistant on an exchange basis only.
 - h. Scrub person notifies (circulator, assistant) if a sponge(s) will be left as temporary packing.
 - i. The counted unit is placed in (the kick bucket, its own container) by the circulator utilizing a closable impervious bag or container to minimize airborne contaminates.

Written Test

- j. The (anesthesia person, circulator) places the unit on an impervious surface.
 - k. As wound closure begins, and as skin closure begins, scrub person and circulator count all sponges in the following order (surgical field, Mayo stand, back table, off field; on the back table, Mayo stand, surgical field, off field).
 - l. Circulator reports results to (surgeon, OR supervisor).
9. Complete the following statements concerning the procedure required in sharp counts by filling in the blanks with the correct answers.
- a. _____ Needles should be counted according to the number marked on the outer package and verified when the package is opened.
 - b. Scrub person and circulator count additional _____ as they are added to the sterile field.
 - c. _____ retains sharps in a puncture-resistant, impervious container that is confined to ensure proper, safe disposal.
 - d. As _____ begins, scrub person and circulator count all sharps; circulator reports results to surgeon.
 - e. As _____ begins, scrub person and circulator do final count; circulator records count and reports results to surgeon.
10. Complete the following statements concerning the procedure required in instrument counts by filling in the blanks with the correct answers.
- a. Before surgery, _____ count the instruments.
 - b. _____ calls off the name of the instrument while _____ points to each.
 - c. Scrub person retains broken instruments or those _____ during the procedure. They must be accounted for in their entirety.
 - d. Instrument counts are taken after _____ have been accounted for.
 - e. Closing count is taken as closure begins, reported to surgeon, and recorded on _____ by circulator.

Written Test

11. Complete the following statements concerning the procedure required for an incorrect count by circling the correct answers.
- a. The entire count is repeated (immediately, as soon as possible).
 - b. If the count is incorrect, the (scrub, circulator) notifies the surgeon, and a search is made for the missing item.
 - c. (Scrub, Circulator) looks in trash receptacles and linen hamper.
 - d. (Scrub, Circulator) looks over drapes and under items on Mayo stand and back table.
 - e. (Surgeon, Circulator) rechecks the operative field and wound.
 - f. If the missing item is not located, (a CT scan, an x-ray) is taken before the patient leaves the operating room.
 - g. If the missing item is not located, the (circulator, surgeon) writes an incident report and notifies the nurse manager.

*Permission to duplicate this test is granted.

932

**Sponge, Sharp, and Instrument Counts
Unit 7-C**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Complete a Count Sheet Rating _____

Comments: _____

Job Sheet 1—Perform a Sponge, Sharp, and Instrument Count Rating _____

Comments: _____

Written Test Scores

Pretest _____ Posttest _____ Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

933

Count Sheet

OPERATING ROOM COUNT SHEET NAME: _____

DATE: _____

INSTRUMENTS	FIRST COUNT	ADD	OFF FIELD	FINAL	SHARPS			
Knife Handles					Needles		Blades	
Sponge Forceps					Initial:	Initial:		
Scissors								
Tissue Forceps					Add:	Add:		
Needleholders								
Mosquitoes - Str								
Mosquitoes - Cvd					Final:	Final:		
Peans								
Ochsners					SPONGES			
Allis					Cottonoids	Peanuts	4x4s	Laps
Babcocks								
Crile - Str					Initial:			
Crile - Cvd								
Kelly - Str					Add:			
Tonsils								
Rt. Angles								
Suction & Parts								
Towel Clamps								
Richardsons					Final:			
Army-Navy								
Deavers								
Malleables					COUNTS: Correct _____			
Balfour					Incorrect _____			
(2 pr. lateral, 2 center blades, & screw)					Circulator: _____			
Additional					Scrub Person: _____			

Sponge, Sharp, and Instrument Counts Unit 7-C

Information Sheet

1. Purposes of sponge, sharp, and instrument counts

- a. To protect the **patient** from the possibility of serious post-operative complications in the event that any sponge, sharp, or instruments were **inadvertently** left in the patient during a procedure
- b. To protect **yourself and your employer** from legal liability

Note: You are legally accountable for all counts, and may be charged in a litigation if you fail to perform these counts or if these counts are performed incorrectly.

- c. To keep instrument set(s) complete

2. Establishment of count policy and procedure

- a. Count policy is initiated by the Operating Room Manager.

Note: The operating room management team and operating room personnel share in the formulation of policies and procedures.

- b. Policy is approved by the administrator over the operating room, the surgery committee, the director of nursing service, and the hospital administration.
- c. Policy and procedure should follow recommended standards of practice established by the Association of Operating Room Nursing (AORN).
- d. Individual hospital policies and procedures may vary slightly, but legally and ethically counts **must** be performed.
- e. Policies and procedures should be reviewed and revised annually.

Information Sheet**3. Items included in a sponge, sharp, and instrument count****a. Sponges**

- (1) Gauze sponges

Examples: 2×2s, 3×3s, 4×4s

- (2) Laparotomy sponges

- (3) Dissecting sponges

Example: Peanuts, kitners, cherries, pushers

- (4) Cottonoid patties

b. Sharps

- (1) Surgical needles

- (2) Knife blades

- (3) Hypodermic needles

- (4) Electrosurgical (cautery) needles and blades

- (5) Safety pins

c. Instruments

- (1) Cutting/dissecting instruments—Knife handles, scissors, etc.

- (2) Grasping/holding instruments—Thumb forceps, towel clamps, etc.

- (3) Clamping/occluding instruments—Hemostatic forceps (clamps)

- (4) Retracting/exposing instruments—Retractors

- (5) Viewing instruments—Specula, endoscopes

- (6) Suturing/stapling instruments—Needleholders, staplers

- (7) Suctioning instruments

- (8) Dilating/probing instruments

Information Sheet

4. Times when counts are to be performed

Note: Some sponge, sharp, and instrument count policies and procedures may exclude certain operative procedures such as cystoscopy and transurethral resection of the prostate.

- a. Prior to the beginning of a procedure (initial count)
- b. During procedure if additional items are added to the sterile field
- c. Whenever there is a permanent change in scrub and/or circulating personnel

Note: Any change of personnel should be documented on the operating room record.

- d. Before any part of a cavity or a cavity within a cavity is closed

Example: Closure of the uterus during cesarean section

- e. As closure of wound begins
- f. As closure of skin begins
- g. Additional counts may be done whenever they are judged necessary by the surgeon, circulator, or scrub person.

Example: When there are two incisions as in bilateral hernia repairs

5. Procedure required for the omission of counts

- a. The occurrence and reason for the occurrence is documented on the operative record by the circulator.
- b. An x-ray is taken at the end of the procedure.
- c. A count should be performed, if at all possible, when the opportunity presents itself during the case.

Information Sheet

6. Responsibilities for counts and their documentation

- a. The circulator and the scrub person count.
- b. The scrub person counts sponges, sharps, and instruments on the sterile field.
- c. The circulator counts sponges, sharps, and instruments off the sterile field.
- d. The count is done **audibly** (aloud) together with the scrub and circulating person concurrently **viewing** each article as it is counted.
- e. The circulator records the count on the patient's operative record and/or the count sheet. (Figure 1)
- f. Additional sponges, sharps, and instruments are added to the count sheet as they are added to the sterile field.
- g. Names and titles of personnel performing the counts are recorded on the patient's operative record and/or the count sheet.
- h. The circulator must sign the patient's operative record.
- i. If a count is omitted or not completed, the incident must be recorded on the patient's operative record and rationale for the count omission.
- j. If count discrepancies occur, action(s) taken must be recorded on the patient's operative record.

Information Sheet

Figure 1—Example of a count sheet

OPERATING ROOM COUNT SHEET					NAME: _____			
					DATE: _____			
INSTRUMENTS	FIRST COUNT	ADD	OFF FIELD	FINAL	SHARPS			
Knife Handles					Needles		Blades	
Sponge Forceps					Initial: _____		Initial: _____	
Scissors								
Tissue Forceps					Add: _____		Add: _____	
Needleholders								
Mosquitoes - Str								
Mosquitoes - Cvd					Final: _____		Final: _____	
Pears								
Ochsners					SPONGES			
Allis					Cottonoids	Peanuts	4x4s	Laps
Babcocks								
Crile - Str					Initial: _____			
Crile - Cvd								
Kelly - Str					Add: _____			
Tonsils								
Rt. Angles								
Suction & Parts								
Towel Clamps								
Richardsons					Final: _____			
Army-Navy								
Deavers								
Malleables					COUNTS: Correct _____			
Ballour (2 pr lateral 2 center blades & screws)					Incorrect: _____			
Additional					Circulator: _____			
					Scrub Person: _____			

7. Safety rules for achieving accurate counts of sponges, sharps, and instruments

Note: If these rules are followed, counts will become easier to perform.

- a. All sponges used during a surgical procedure should be radiopaque (x-ray detectable).
- b. Always count together audibly, with circulator and scrub person concurrently viewing each sponge, sharp, and instrument as it is counted.

Information Sheet

- c. Always keep various sizes of sponges separated during the procedure.
- d. Always replace gauze sponges on the operative field with laparotomy sponges as the body cavity is opened.

Note: Gauze sponges may be folded into small squares and used on a sponge forcep deep in the body cavities. These are given to the surgeon and/or assistant on an exchange basis only.

- e. Always place small dissectors on an instrument.
- f. Always keep small dissectors in a package or container until they are placed on an instrument for use.
- g. Never remove linen or trash container from the operating room until all counts are verified.

Note: Soiled linen or trash may inadvertently contain a counted item.

- h. Never allow a counted item to be taken from the operating room during a procedure (such as a sponge holding a specimen being sent for a frozen section.)
- i. Sponges may intentionally be used as packing. If the patient leaves the operating room with a counted sponge packing in place, the number and type of sponges retained should be documented on the operative record.
- j. Used sponges should be confined and contained.
- k. Used sponges should be handled with instruments and/or gloved hands only, **never** with bare hands.
- l. Sponges are removed from the sterile field to an imperviously lined kick bucket, **never** the trash.
- m. Never take prepackaged sponge counts for granted. If package count is incorrect, isolate from the sterile field and **Do Not Use**.
- n. Radiopaque sponges are **never** used for dressings.
- o. Prep sponges are non-radiopaque and are kept isolated from the sterile field.
- p. Never discard prep sponges in the kick bucket.
- q. Sharps are counted continually throughout the procedure.

Information Sheet

- r. Suture needles should be counted according to the number marked on the outer package and verified by the scrub and circulator when the package is opened.
- s. Pass sharps to the surgeon and/or assistant on an exchange basis only.
- t. Broken sharps must be accounted for in their entirety.
- u. Sharps should be contained in a puncture resistant, impervious container and confined to ensure proper, safe disposal.
- v. Broken instruments or those disassembled during the procedure must be accounted for in their entirety.
- w. If either the scrub person or circulating person is relieved by another person during the operation, the incoming person should verify all counts before the person being relieved leaves the room.

Note: Persons who take final counts are held accountable and must sign the records.

- x. Circulator and scrub person count all items in the following order:
 - (1) Counted items on the surgical field
 - (2) Counted items on the Mayo stand
 - (3) Counted items on the back table
 - (4) Counted items off the sterile field

Note: Items are usually counted from the smallest to the largest in each grouping such as peanuts, then 4x4 gauze sponges, and then laparotomy sponges.

- y. Counts should never be interrupted.

8. Procedures required in sponge counts

- a. Before surgery
 - (1) Scrub person and circulator count **audibly** (aloud) together with the scrub and circulating person concurrently viewing each article as it is counted.
 - (2) The scrub person should hold sponges off the table, check for radiopaque strip, and count each sponge separately.
 - (3) Circulator records number and type of sponges in units of 5 or 10 on the count sheet.

Information Sheet

b. During surgery

- (1) Scrub person and circulator count additional sponges as they are added to the sterile field.

- (2) Scrub person discards used sponges in imperviously lined kick bucket.

Note: Scrub person should unfold gauze sponges before placing in the kick bucket to limit unnecessary handling by the circulator.

- (3) Scrub person keeps small dissectors contained on the sterile field, grouping in units of 5 or 10 as they were prepackaged.

- (4) Scrub person replaces gauze sponges with laparotomy sponges as cavity is opened.

- (5) Scrub person places gauze sponges and small dissectors on instruments while cavity is open giving them to the surgeon and/or assistant on an exchange basis only.

- (6) Scrub person notifies circulator if a sponge(s) will be left as temporary packing.

- (7) The circulator records the number and type of sponges retained on the operative record.

- (8) When a unit of sponges is complete (5 or 10), it is counted audibly and viewed concurrently by circulator and scrub.

- (9) The counted unit is placed in its own container by the circulator utilizing a closable impervious bag or container to minimize airborne contaminants.

Example: One unit of laparotomy sponges is a unit of 5.

Note: It is recommended that these bags or containers be transparent to facilitate viewing and/or weighing by the operative team.

- (10) The circulator places the unit on an impervious surface.

- (11) The circulator records the number of sponges in each unit and the number of units so when it is time for the next count, there is a record of the number of units bagged or in containers.

Caution: Hanging sponges on a rack or laying moist sponges on a wrapper on the floor is a potential source of environmental contamination.

Information Sheet

- c. As wound closure begins
 - (1) Circulator and scrub person count all sponges in the following order: on the surgical field, Mayo stand, and back table.
 - (2) Circulator and scrub person count all discarded sponges.
 - (3) Circulator reports results to surgeon—correct or incorrect.
- d. As skin closure begins
 - (1) Circulator and scrub person count all sponges in the following order surgical field, Mayo stand, back table, off field.
 - (2) Circulator and scrub person count all discarded sponges.
 - (3) Circulator reports results to surgeon—correct or incorrect.
 - (4) Circulator records the final sponge count on the count sheet.

Note: By written and approved policy and procedure, the third and subsequent counts may be deleted if significant risk for a retained item is unlikely and harm for the patient does not exist. This exclusion usually applies only to sponges used for superficial incisions or in body cavities too small to inadvertently bury a sponge.

9. Procedure required in sharp counts

- a. Before surgery
 - (1) Scrub person and circulator count **audibly** (aloud) together with the scrub and circulating person concurrently **viewing** each article as it is counted.
 - (2) Suture needles should be counted according to the number marked on the outer package and verified when the package is opened.
 - (3) Circulator records number and type of sharps on the count sheet.
- b. During surgery
 - (1) Scrub person should continually maintain a tally of needles at the operative site.
 - (2) Scrub person and circulator count additional sharps as they are added to the sterile field.
 - (3) Scrub person retains broken sharps in their entirety.

Information Sheet

- (4) Scrub person retains sharps in a puncture resistant, impervious container that is confined to ensure proper, safe disposal.
 - (5) If container becomes full, it may be passed off the field.
 - (6) Circulator and scrub person count the full containers audibly and viewed concurrently as they are passed off the field.
- c. As wound closure begins
- (1) Circulator and scrub person count all sharps in the following order: on the surgical field, Mayo stand, and back table.
 - (2) Circulator and scrub person count all discarded sharps.
 - (3) Circulator reports results to surgeon—correct or incorrect.
- d. As skin closure begins
- (1) Circulator and scrub person count all sharps in the following order: on the surgical field, Mayo stand, and back table.
 - (2) Circulator and scrub person count all discarded sharps.
 - (3) Circulator reports results to surgeon—correct or incorrect.
 - (4) Circulator records the final count on the count sheet.

Note: By written and approved policy and procedure, the third and subsequent counts may be deleted if significant risk for a retained item is unlikely and harm for the patient does not exist. This exclusion usually applies only to sharps used for superficial incisions or in body cavities too small to inadvertently bury a sharp.

10. Procedure required in instrument counts

- a. Before surgery
- (1) Circulator and scrub person count **audibly** (aloud) together with the scrub and circulating person concurrently **viewing** each article as it is counted.
 - (a) Circulator calls off name of instrument.
 - (b) Scrub person points to each instrument as it is called.
 - (2) Circulator records count on count sheet.

Information Sheet

- b. During surgery
 - (1) Scrub person and circulator count additional instruments as they are added to the sterile field.
 - (2) Scrub person retains broken instruments or those disassembled during the procedure. They must be accounted for in their entirety.
- c. As skin closure begins
 - (1) Instrument counts are taken after all sponges and sharps have been accounted for.
 - (2) Circulator and scrub person count all instruments in the following order: on the surgical field, Mayo stand, and back table.
 - (3) Circulator and scrub person count all discarded instruments.
 - (4) Circulator reports results to surgeon—correct or incorrect.
 - (5) Circulator records the final instrument count on the count sheet.
 - (6) Instruments should be contained and confined in impervious containers before decontamination.

Note: By written and approved policy and procedure, the third and subsequent counts may be deleted if significant risk for a retained item is unlikely and harm for the patient does not exist. This exclusion usually applies only to instruments used for superficial incisions or in body cavities too small to inadvertently bury an instrument.
- d. At completion of procedure, circulator and/or scrub person sign the count record as required by the policy and procedure of the institution.

11. Procedure required for an incorrect count

- a. The entire count is repeated immediately.
- b. If the count is incorrect, the circulator notifies the surgeon, and a search is made for the missing item.
- c. All personnel should direct their immediate attention to locating the missing item.
- d. Circulator looks in trash receptacles, under furniture, on floor, in linen hamper, and throughout the room.
- e. Scrub person looks over drapes and under items on Mayo stand and back table.

Information Sheet

- f. Surgeon rechecks the operative field and wound.
- g. If the missing item is not located:
 - (1) An x-ray is taken before the patient leaves the operating room.
 - (2) Circulator notifies the nurse manager.
 - (3) Circulator writes an incident report according to policy and procedure of the institution.

Caution: This report has legal significance to verify an appropriate attempt was made to locate the missing item.

- h. If surgeon refuses permission for an x-ray:
 - (1) Circulator notifies the nurse manager.
 - (2) Circulator documents the refusal on the incident report.
 - (3) Surgeon signs the incident report.

Note: An x-ray is mandated by many institution's policy and procedure if a missing article is not located.

Sponge, Sharp, and Instrument Counts Unit 7-C

Assignment Sheet 1—Complete a Count Sheet

Name _____ Overall Rating _____

Evaluation criteria	Rating
Articles to be counted are identified	_____
Counts are recorded accurately	_____
Count sheet is signed	_____

Introduction: Sponges left in wounds after closure are the most frequent cause for lawsuits following operations. All surgical team members are held responsible for accurate counts and their documentation. This assignment sheet will help you determine what should be counted on an abdominal case and practice the appropriate documentation of counts.

Direction: Using the following case situation, determine what articles should be counted and complete the blank count sheet that follows.

Situation: The patient is a thirty-year-old female undergoing exploratory laparotomy for right quadrant pain, nausea, and fever of unknown origin. The following instruments and supplies have been opened for use on this case. There were also supplies added to the sterile field during the case.

1. Basic laparotomy set:
 - 12 Backhaus towel clamps (5½")
 - 24 curved Kelly forceps (5½")
 - 4 Babcock forceps (6¼")
 - 2 Allis forceps (6")
 - 3 tonsil hemostats (7¼")
 - 6 curved Ochsner forceps (1 × 2 teeth)
 - 2 diamond jaw needle holders (7")
 - 2 diamond jaw needle holders (8")
 - 1 diamond jaw needle holder (6")
 - 4 sponge forceps (9½")
 - 1 curved Mayo scissors
 - 2 straight Mayo scissors
 - 1 Metzenbaum scissors
 - 2 Army-Navy retractors
 - 3 malleable retractors (2", 1½", 1" blades)
 - 2 #3 knife handles

Assignment Sheet 1

- 2 #4 knife handles
- 1 #3-long knife handle
- 1 Poole suction
- 2 tissue forceps, 1×2 teeth (6")
- 2 smooth tissue forceps (6")
- 2 Adson forceps with teeth (4¾")
- 1 Russian forcep (6")
- 1 smooth tissue forcep (10")
- 3 Deaver retractors (1", 2", 3" blades)
- 2 Richardson retractors (2 × ¾")
- 1 Richardson retractor, large (1⅝" × 2½")
- 1 Richardson retractor, medium (1½" × 1¾")
- 2. 10 laparotomy sponges
- 3. 10 gauze sponges (four-by-fours)
- 4. 5 peanuts
- 5. 2 silk 3-0, 4-0 standard length ties
- 6. 2 chromic 3-0 standard length ties
- 7. 4 packages chromic 2-0 general closure
- 8. 2 packages silk 3-0 multi-pak (8)
- 9. 1 cartridge skin staples
- 10. 8 disposable towels
- 11. 1 laparotomy drape
- 12. 4 gowns and gloves
- 13. 1 cautery with needle point tip
- 14. 1 cautery tip cleaner
- 15. 1 marking pen
- 16. Basin set
- 17. 2 knife blades #10
- 18. 2 knife blades #20
- 19. Balfour retractor with blades and screw

Equipment and supplies added as the case progressed:

- 1. 5 Crile forceps (5½") straight
- 2. 2 Rochester-Pean forceps (6¼")
- 3. 2 Volkmann rake retractors
- 4. 2 right angle retractors
- 5. 5 laparotomy sponges
- 6. 1 package silk 3-0 multi-pak (8)
- 7. 10 gauze sponges (four-by-fours)
- 8. 2 culture tubes
- 9. 5 laparotomy sponges
- 10. 1 Jackson-Pratt drain
- 11. 2 packages silk 4-0 general closure

Using this information, complete the following count sheet. Assume that the final count was done and was correct.

Assignment Sheet 1

OPERATING ROOM COUNT SHEET

NAME: _____

DATE: _____

INSTRUMENTS	FIRST COUNT	ADD	OFF FIELD	FINAL	SHARPS			
Knife Handles					Needles		Blades	
Sponge Forceps					Initial:	Initial:		
Scissors								
Tissue Forceps					Add:	Add:		
Needleholders								
Mosquitoes - Str								
Mosquitoes - Cvd					Final:	Final:		
Pearns								
Ochsners					SPONGES			
Allis					Cottonoids	Peanuts	4x4s	Laps
Babcocks					Initial:			
Crile - Str								
Crile - Cvd								
Kelly								
Tonsils					Add:			
Rt. Angles								
Suction & Parts								
Towel Clamps								
Richardsons					Final:			
Army-Navy								
Deavers								
Malleables					COUNTS: Correct _____			
Balfour (2 pr. lateral, 2 center blades, & screw)					Incorrect _____			
Additional					Circulator: _____			
					Scrub Person: _____			

Sponge, Sharp, and Instrument Counts Unit 7-C

Job Sheet 1—Perform a Sponge, Sharp, and Instrument Count

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Prepared back table and Mayo stand for counts	_____
Counted appropriate equipment and supplies	_____
Performed counts at appropriate times	_____
Used only radiopaque sponges	_____
Counted audibly with circulator	_____
Viewed concurrently with circulator	_____
Held sponges off table when counting	_____
Kept sponges separated	_____
Verified needles in suture packs	_____
Contained sharps in resistant/impervious container	_____
Pointed to each instrument as it was called	_____
Performed counts in proper sequence	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have your back table and Mayo stand prepared to simulate an actual operating room setting.

Note: To better simulate the operating room setting, ask another student or the instructor to assume the role of the circulator during the count procedure.

A. Equipment and materials

Basic back table setup

Sponges: Laparotomy (10), gauze sponges (four-by-fours) (20), and peanuts (5)

Sharps: Knife blades (2); Needles — one multi-pak suture, two general closure sutures, cautery blade (1) if available, cautery needle tip (1) if available.

Instruments: Basic laparotomy instrument set

Count sheet

B. Procedure

1. Perform initial count.

- ☐ a. Count all sponges with circulator.
- ☐ b. Count all sharps with circulator.
- ☐ c. Count all instruments with circulator.

Job Sheet 1

2. During case, maintain continual count of sponges, sharps, and instruments.
3. As closure begins:
 - ☐ a. Count all sponges on sterile field and off field. Circulator records and reports to surgeon.
 - ☐ b. Count all sharps on sterile field and off field. Circulator records and reports to surgeon.
 - ☐ c. Count all instruments on sterile field and off field. Circulator records and reports to surgeon.
4. As skin closure begins
 - ☐ a. Count all sponges on sterile field and off field. Circulator records and reports to surgeon.
 - ☐ b. Count all sharps on sterile field and off field. Circulator records and reports to surgeon.
 - ☐ c. Count all instruments on sterile field and off field. Circulator records and reports to surgeon.
5. After completion of case
 - ☐ a. Check count sheet for accuracy.
 - ☐ b. Sign count sheet in the appropriate place.

Evaluator's comments: _____

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Objective Sheet

Unit Objective

After completing this unit, the student should be able to discuss the roles and responsibilities of the surgical technologist and the circulator during the pre-operative, intra-operative, and post-operative periods. The student should demonstrate these competencies by completing the assignment sheet and job sheets and by scoring a minimum of 85 percent on the written test.

Specific Objectives

After completing this unit, the student should be able to:

1. Match pre-operative responsibilities to the roles of the surgical technologist or circulator.
2. Complete statements concerning the roles and responsibilities of the surgical technologist and the circulator during the intra-operative period of the surgical procedure.
3. Distinguish between true and false statements concerning the roles and responsibilities of the surgical technologist and the circulator during the postoperative period of the surgical procedure.
4. Differentiate between the roles and responsibilities of the surgical technologist and circulator pre-, intra-, and post-operatively. (Assignment Sheet 1)
5. Arrange a basic back table. (Job Sheet 1)
6. Arrange a basic Mayo stand. (Job Sheet 2)
7. Perform the surgical technologist's duties when establishing a sterile field. (Job Sheet 3)
8. Perform the circulator's duties when establishing a sterile field. (Job Sheet 4)

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Suggested Activities

Instructional Plan

Preparation

1. Read the unit carefully and plan for instruction.
2. Review Teaching Suggestions section that follows. Plan for classroom activities.
3. Plan for students with special needs.
4. Obtain films, videotapes, and other resources to supplement instruction of this unit. See ordering information in the Suggested Supplemental Resources section that follows.
5. Develop teaching plan. Adjust for different learning styles.
6. Review "Instructions for Evaluation Student Performance," which follows the resources in this section of the unit. Make copies of Unit Evaluation Form, which follows the written test section.

Delivery and Application

7. Provide students with unit of instruction.
8. Discuss unit and specific objectives.
9. Discuss information sheet. Implement teaching plan to localize, supplement, and personalize the unit. Reinforce basic academic and workplace skills when applicable.
10. Discuss the assignment sheet. Review criteria for evaluation of this activity.
11. Discuss and demonstrate the job sheets. Make sure all required tools, equipment, and supplies are available. Review criteria for evaluation of these activities.

Evaluation

12. Discuss the use of the Unit Evaluation Form with students. Discuss the rating scale that will be used for student evaluation.
13. Make copies of the written test. Add or modify test items as needed.

Suggested Activities

14. Give written test.
15. Compile assignment sheet ratings, job sheet ratings, and written test scores on the Unit Evaluation Form. Include any additional assignments or supplemental activities that should be part of the unit evaluation.
16. Reteach and retest as required.

Teaching Suggestions

Note: Skill areas appearing in boldface type in the Teaching Suggestions refer to the academic and workplace skills identified by the American Society for Training and Development (ASTD) and the U.S. Department of Labor. These have been adapted by MAVCC.

1. To introduce this unit, show the videotape *Operating Room Techniques* (see Suggested Supplemental Resources). Have a class discussion on whether the duties depicted in the video are what they actually see performed in the clinical area. **Communication skills**
2. Invite a circulator and a surgical technologist to speak to the class on the importance of each individual's job and how they blend those responsibilities into a functional team unit. **Communication skills, personal management skills, especially teamwork**
3. Ask the media specialist in your school to videotape each student performing the duties of one of the job sheets in the unit. Have the student critique their performance against the evaluation criteria. **Problem-solving skills**
4. Ask the media specialist in your school to subscribe to *AORN Journal* and the *OR Nurse* magazine. Have students research topics and write a short paper on job responsibilities and the concept of "teamwork." **Reading and writing foundation skills, adaptability skills**
5. Have students compile a job profile or a job description based on what they have learned from this unit. **Personal management skills, adaptability skills**
6. To develop interest, have students develop a bulletin board on their job profile. Do a pictorial study on the sequence of job duties of the operating room team. **Group effectiveness skills**
7. Suggest to the students that their HOSA student organization might be interested in doing a pictorial on each program's occupation. Display these in the school so the students can learn more about each job's responsibilities. This could take the form of a job fair. **Personal management skills, group effectiveness skills, influence skills**

Suggested Activities

8. Additional suggestion for Assignment Sheet 1: Cut out the list of duties, fold, and place in a container. Have each student in turn draw a folded piece, read duty aloud, and state whether the duty is that of the circulator, surgical technologist, or both. Mix in a few duties that belong to other team members. **Group effectiveness skills**

Resources Used in Developing This Unit

1. *AORN Standards and Recommended Practices for Perioperative Nursing*. Denver: Association of Operating Room Nursing, Inc., 1993.
2. Atkinson, Lucy Jo. *Berry and Kohn's Operating Room Technique*, 7th ed. St. Louis: C. V. Mosby — Year Book, Inc., 1992.
3. Corder, Jacqueline W. *Logic of Operating Room Nursing*, 3rd ed. Oradell, NJ: Medical Economics Company, Inc., 1984.
4. Meeker, Margaret Huth, and Jane C. Rothrock. *Alexander's Care of the Patient in Surgery*, 9th ed. St. Louis: C. V. Mosby — Year Book, Inc., 1991.
5. Spry, C. *Essentials of Perioperative Nursing: A Self-Learning Guide*. Rockville, MD: Aspen Publishers, 1988.

Suggested Supplemental Resources

1. Books/Articles
 - a. Fuller, Joanna R. *Surgical Technology: Principles and Practice*, 2nd ed. Philadelphia: W. B. Saunders Company, 1986.
 - b. Goldman, Maxine A. *Pocket Guide to the Operating Room*. Philadelphia: F. A. Davis Company, 1988.
2. Videotape—BASIC CLINICAL SKILLS — *Operating Room Techniques*, 840-VI-009. Available from:

Health Science Consortium
201 Silver Cedar Court
Chapel Hill, NC 27514-1517
919-942-8731

Suggested Activities

Instructions for Evaluating Student Performance

When the student is ready to perform a specific task, obtain a copy of the job sheet which may be found in either the teacher or student edition. Then observe the student performing the procedure.

Process evaluation—Place a mark in the box to the left of each designated checkpoint if the student has satisfactorily achieved the step(s) for each checkpoint area. If the student is unable to correctly complete the procedure, have the student review the materials and try again.

Product evaluation—Once the student has satisfactorily completed the procedure, rate the student product (outcome) using the criteria which have been provided as part of the job sheet. If the student's product is unacceptable, have the student review the materials and submit another product for evaluation.

Sample performance evaluation keys have been provided below. Many other keys are available. Select one rating (grading scale) which best fits your program needs.

Option A

- 4 - Skilled—Can perform job with no additional training.
- 3 - Moderately skilled—Has performed job during training program; limited additional training may be required.
- 2 - Limited skill—Has performed job during training program; additional training is required to develop skill.
- 1 - Unskilled—Is familiar with process, but is unable to perform job.

Option B

- Yes—Can perform job with no additional training.
- No—Is unable to perform job satisfactorily.

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Answers to Assignment Sheet 1

1. A	15. A	29. B	43. B
2. B	16. A	30. C	44. A
3. B	17. A	31. B	45. A
4. C	18. B	32. A	46. B
5. C	19. B	33. B	47. B
6. A	20. B	34. B	48. B
7. C	21. C	35. A	49. B
8. C	22. A	36. B	50. A
9. C	23. A	37. A	51. B
10. B	24. A	38. C	52. B
11. A	25. A	39. C	53. C
12. A	26. B	40. A	54. A
13. B	27. C	41. A	55. B
14. B	28. C	42. B	56. C

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Answers to Written Test

- | | | | | | |
|----|------|------|------|-------|-------|
| 1. | a. 3 | h. 2 | o. 1 | v. 2 | cc. 2 |
| | b. 2 | i. 2 | p. 3 | w. 2 | dd. 3 |
| | c. 2 | j. 1 | q. 3 | x. 3 | ee. 2 |
| | d. 2 | k. 1 | r. 1 | y. 1 | |
| | e. 2 | l. 1 | s. 3 | z. 1 | |
| | f. 3 | m. 1 | t. 3 | aa. 2 | |
| | g. 1 | n. 1 | u. 1 | bb. 2 | |
-
- | | | |
|----|------|------|
| 2. | a. 3 | e. 1 |
| | b. 2 | f. 3 |
| | c. 2 | g. 1 |
| | d. 3 | |
-
- | | |
|----|---|
| 3. | <p>a. F—The surgical technologist should clear off Mayo stand leaving a scalpel, tissue forceps, scissors, four hemostats, and two Allis forceps.</p> <p>b. F—The surgical technologist cleans and dries incision site.</p> <p>c. T</p> <p>d. T</p> <p>e. F—The circulator assists the anesthetist with transfer of patient to post-anesthesia recovery.</p> <p>f. T</p> <p>g. F—It is the responsibility of the surgical technologist to remove the instruments from the operating room.</p> <p>h. F—The surgical technologist removes his/her gown and gloves in the proper manner.</p> <p>i. T</p> <p>j. T</p> <p>k. T</p> <p>l. F—The circulator and the surgical technologist dispose of all suction container contents.</p> |
|----|---|

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Written Test

Name _____ Score _____

1. Match pre-operative responsibilities to the role of the surgical technologist or to the role of the circulator. Place a 1, 2, or 3 in the spaces provided.

1. Surgical Technologist 2. Circulator 3. Dual

- _____ a. Check surgeon's preference card for assigned case
- _____ b. Assist patient in moving to OR table
- _____ c. Perform sterile prep and catheterization as required
- _____ d. Assist anesthetist during induction and intubation
- _____ e. Place electrosurgical grounding pad
- _____ f. Make sure masks are in place
- _____ g. Arrange instruments and supplies on back table
- _____ h. Check OR table, suction, lights, electrosurgical unit
- _____ i. Tie gowns
- _____ j. Drape Mayo stand
- _____ k. Put blades on knife handles
- _____ l. Pass distal end of suction tubing and electrosurgical cord
- _____ m. Arrange instruments on Mayo stand
- _____ n. Place appropriate size sponges for initial incision on Mayo stand
- _____ o. Gown and glove surgeon and assistants
- _____ p. Do initial sharp, sponge, and instrument count
- _____ q. Watch for breaks in aseptic technique

Written Test

- _____ r. Perform surgical hand scrub
 - _____ s. Check schedule for assigned cases
 - _____ t. Wear proper operating room attire
 - _____ u. Prepare suture in proper sequence
 - _____ v. Check chart for history, physical exam, consent forms, laboratory reports, x-ray reports, and allergies
 - _____ w. Apply restraints as necessary
 - _____ x. Pull instruments and supplies according to case routine
 - _____ y. Arrange Mayo stand over patient
 - _____ z. Pass and assist surgeon with draping
 - _____ aa. Arrange back table to complete sterile field
 - _____ bb. Connect suction and electrosurgical unit to proper machines
 - _____ cc. Identify patient
 - _____ dd. Open outer wrappers
 - _____ ee. Visit with patient to discuss surgery and hospital routine
2. Complete the following statements concerning the roles and responsibilities of the surgical technologist and the circulator during the intra-operative period of the surgical procedure by placing the correct answers (1, 2, or 3) in the blanks provided.
- _____ a. The surgical technologist should _____ instruments as required during the surgical procedure.
 - (1) Clean
 - (2) Disassemble
 - (3) Pass
 - _____ b. The circulator should _____ specimens for transportation to the laboratory.
 - (1) Care for all
 - (2) Prepare and label
 - (3) Clean

969

Written Test

_____ c. The circulator keeps discarded sponges separated by _____.

- (1) Amount of drainage
- (2) Size of sponge
- (3) Type of drainage

_____ d. The surgical technologist and circulator watch for _____.

- (1) People entering the OR room
- (2) Appropriate times to count
- (3) Breaks in aseptic technique

_____ e. The surgical technologist anticipates the needs of the _____.

- (1) Surgeon
- (2) Circulator
- (3) Anesthetist

_____ f. The circulator anticipates the needs of the _____.

- (1) Surgeon and assistant
- (2) Anesthetist
- (3) Surgical team

_____ g. The surgical technologist should count all items _____.

- (1) On the sterile field
- (2) Off the sterile field
- (3) In the OR room

3. Distinguish between true and false statements concerning the roles and responsibilities of the surgical technologist and circulator during the post-operative period of the surgical procedure by placing a "T" in the blank if the statement is true or by placing an "F" in the blank if the statement is false. If the statement is false, use the space below each statement to write the statement correctly.

_____ a. The surgical technologist should clear off Mayo stand leaving a scalpel, scissors, and two Allis forceps.

Written Test

- _____ b. The circulator cleans and dries incision site.
- _____ c. The circulator and the surgical technologist assist moving the patient to the recovery cart.
- _____ d. The circulator tapes the dressing in place.
- _____ e. The circulator assists the surgeon with transfer of patient to post-anesthesia recovery.
- _____ f. The surgical technologist places the initial sterile dressing on the wound.
- _____ g. It is the responsibility of both the circulator and the surgical technologist to remove the instruments from the operating room.
- _____ h. The surgical technologist removes the gowns and gloves of the surgical team.

962

Written Test

_____ i. It is a dual responsibility to undrape the patient.

_____ j. It is the responsibility of the circulator to complete the operating room record.

_____ k. The circulator connects drains to collection apparatus.

_____ l. The surgical technologist disposes of all suction container contents.

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Unit Evaluation Form

Student Name _____ Unit Rating _____

Assignment Sheet 1—Differentiate Between Roles and Responsibilities
of the Surgical Technologist and Circulator Pre-, Intra-, and
Post-Operatively

Rating _____

Comments: _____

Job Sheet 1—Arrange a Basic Back Table

Rating _____

Comments: _____

Job Sheet 2—Arrange a Basic Mayo Stand

Rating _____

Comments: _____

Job Sheet 3—Perform the Surgical Technologist's Duties When
Establishing a Sterile Field

Rating _____

Comments: _____

Job Sheet 4—Perform the Circulator's Duties When Establishing a
Sterile Field

Rating _____

Comments: _____

Unit Evaluation Form

Written Test Scores

Pretest _____

Posttest _____

Other _____

Other _____

Teacher Signature _____ Date _____

Student Signature _____ Date _____

*Permission to duplicate this form is granted.

985

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Information Sheet

1. Responsibilities of the circulator and the surgical technologist during the pre-operative period

Note: Many duties of the circulator and surgical technologist must occur simultaneously and in the spirit of mutual cooperation.

PRE-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
	— Visit with patient to discuss surgery and hospital routine — Check chart for history, physical examination, consent forms, laboratory reports (CBC, UA), x-ray reports (chest and diagnostic films) cardiology reports (EKG), and allergies — Check OR table, suction, lights, electrosurgical unit, additional equipment	— Wear proper OR attire (scrub suits, shoe covers, head gear, no jewelry) — Check schedule for assigned cases — Check surgeon's preference card for assigned cases — Pull instruments and supplies for case according to case routine and surgeon's preference — Make sure masks are in place — Open outer wrappers — Create initial sterile field

Information Sheet

PRE-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
— Perform surgical hand scrub according to hospital policy and procedure — Gown and glove self — Organize back table — Drape Mayo stand — Arrange instruments on Mayo stand — Arrange instruments on back table — Put blades on knife handles — Prepare sutures in sequence in which they will be used — Place appropriate size sponges for the initial incision on the Mayo stand — Gown and glove surgeon and assistants — Pass and assist surgeon with draping — Arrange Mayo over patient	— Tie gown of surgical technologist — Pour sterile solutions — Identify patient — Assist patient in moving to OR table — Apply restraints as necessary — Assist anesthetist in applying monitoring devices and starting IV — Assist anesthetist during induction and intubation — Place electrosurgical grounding pad — Do sterile prep and catheterization as required — Tie gowns for surgeon and assistants	— Do initial sharp, sponge, and instrument count — Arrange back table to complete sterile field (Tech arranges sterile field; Circulator assists positioning back table touching below drape)

Information Sheet

PRE-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
— Pass distal end of suction tubing and electrosurgical unit's cord off field	— Connect suction and electrosurgical unit to proper machines — Set electrosurgical unit and suction at appropriate levels for use	— Watch for breaks in aseptic technique

2. Responsibilities of the circulator and the surgical technologist during the intra-operative period

INTRA-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
— Pass instruments as required — Attempt to anticipate needs of surgeon — Discard soiled sponges in appropriate manner — Keep sterile field neat and uncluttered — Keep instruments wiped clean	— Focus overhead operating light(s) — Position kick-buckets on each side of operating table — Attempt to anticipate needs of sterile team — Keep discarded sponges separated by sizes — Obtain additional equipment and supplies as needed — Fill out OR record	— Watch for breaks in aseptic technique

Information Sheet

INTRA-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
— Care for all tissue specimens according to hospital policy and procedure. — Count all items on sterile field	— Prepare and label specimens for transportation to laboratory according to hospital policy and procedure — Count all items off sterile field — Verify count, and report correct or incorrect counts to surgeon	— Perform counts according to hospital policy and procedure

3. Responsibilities of the circulator and surgical technologist during the post-operative period

POST-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
— Clear off Mayo stand leaving scalpel, tissue forceps, scissors, four hemostats, and two Allis forceps	— Open neck and back closures of gowns of surgeon and assistants	

Information Sheet

POST-OPERATIVE PERIOD

TECHNOLOGIST RESPONSIBILITIES	CIRCULATOR RESPONSIBILITIES	DUAL RESPONSIBILITIES
— Cleanse and dry incision site — Place initial sterile dressing on wound	— Tape dressing — Connect drains to collection apparatus — Secure drains — Complete OR records — Assist anesthetist with transfer of patient to post-anesthesia recovery (PAR)	— Undrape patient — Move patient to recovery cart — Dispose of all solutions and suction container contents according to hospital policy and procedure — Prepare room for next case
— Remove instruments from OR — Discard soiled sponges, sharps, and patient-contaminated articles according to hospital policy and procedure — Remove gown and gloves in proper manner		

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

**Assignment Sheet 1—Differentiate Between Roles and Responsibilities of the
Surgical Technologist and Circulator Pre-, Intra-, and Post-Operatively**

Name _____ Overall Rating _____

Evaluation criterion	Rating
Roles are accurately identified	_____

Introduction: The duties of the surgical team pre-, intra-, and post-operatively are varied and many. Members of the team must know what their individual responsibilities are and be aware of the responsibilities of other team members. The scrub person and circulator must plan their duties so that through a coordinated effort the sterile and nonsterile parts of the operation move along simultaneously. Only in this manner is the surgical team able to serve the patient's best interests and promote mutual cooperation.

Directions: Using the following list of pre-, intra-, and post-operative responsibilities, decide whether the responsibility is that of the scrub person, circulator, or both (dual responsibility). Place the correct letter (A, B, or C) in the space provided by each responsibility listed.

A. Surgical Technologist B. Circulator C. Dual

- _____ 1. Gown and glove surgeon and assistants
- _____ 2. Focus overhead operating lights
- _____ 3. Obtain additional equipment and supplies as needed
- _____ 4. Perform counts according to hospital policy and procedure
- _____ 5. Watch for breaks in aseptic technique
- _____ 6. Perform surgical hand scrub
- _____ 7. Check schedule for assigned cases
- _____ 8. Pull instruments and supplies according to case routine
- _____ 9. Make sure masks are in place
- _____ 10. Tape dressings

Assignment Sheet 1

- _____ 11. Discard soiled sponges and patient-contaminated articles
- _____ 12. Organize back table
- _____ 13. Check OR table, suction, lights, electrosurgical unit
- _____ 14. Tie gowns
- _____ 15. Drape Mayo stand
- _____ 16. Put blades on knife handles
- _____ 17. Pass distal end of suction tubing and electrosurgical cord
- _____ 18. Arrange back table to complete sterile field
- _____ 19. Connect suction and electrosurgical unit to proper machines
- _____ 20. Identify patient
- _____ 21. Open outer wrappers
- _____ 22. Arrange instruments on Mayo stand
- _____ 23. Place appropriate size sponges for initial incision on Mayo stand
- _____ 24. Arrange Mayo stand over patient
- _____ 25. Pass and assist surgeon with draping
- _____ 26. Visit with patient to discuss surgery and hospital routine
- _____ 27. Wear proper operating room attire
- _____ 28. Check surgeon's preference card for assigned case
- _____ 29. Assist patient in moving to OR table
- _____ 30. Watch for breaks in aseptic technique
- _____ 31. Perform sterile prep and catheterization as required
- _____ 32. Arrange instruments on back table
- _____ 33. Assist anesthetist during induction and intubation
- _____ 34. Place electrosurgical grounding pad

Assignment Sheet 1

- _____ 35. Prepare suture in proper sequence
- _____ 36. Complete operating room records
- _____ 37. Cleanse and dry incision site
- _____ 38. Dispose of all solutions and suction container contents
- _____ 39. Move patient to recovery cart
- _____ 40. Place initial sterile dressing on wound
- _____ 41. Remove instruments from the operating room
- _____ 42. Check chart for history, physical exam, consent forms, laboratory reports, x-ray reports, and allergies
- _____ 43. Apply restraints as necessary
- _____ 44. Pass instruments as required
- _____ 45. Anticipate needs of surgeon
- _____ 46. Anticipate needs of sterile team
- _____ 47. Prepare and label specimens for transportation to laboratory
- _____ 48. Verify count, and report correct or incorrect counts to surgeon
- _____ 49. Position kick buckets on each side of operating table
- _____ 50. Count all items on sterile field
- _____ 51. Count all items off sterile field
- _____ 52. Assist anesthetist with transfer of patient to post-anesthesia recovery
- _____ 53. Undrape patient
- _____ 54. Discard soiled sponges in appropriate manner
- _____ 55. Open neck and back closures of gowns of surgeon and assistants
- _____ 56. Prepare room for next case

Division of Duties
When Establishing a Sterile Field
Unit 8-C

Job Sheet 1—Arrange a Basic Back Table

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled all equipment and supplies	_____
Draped back table in the appropriate manner	_____
Opened all supplies on to back table appropriately	_____
Scrubbed, gowned, and gloved in the appropriate manner	_____
Placed linen in the designated area of back table	_____
Placed gloves and gowns in designated area	_____
Set towels on top of gowns	_____
Placed extra towels in designated area	_____
Placed basins in designated area	_____
Placed instrument set in designated area	_____
Placed sponges in designated area	_____
Placed suction tubing with tip in designated area	_____
Placed electrosurgical cord in designated area	_____
Arranged suture as designated by instructor	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have all equipment and supplies ready to simulate an actual operating room setting.

A. Equipment and supplies

Note: You may use a basic laparotomy pack if available.

Back table
 Back table cover (sterile)
 Instrument set
 Basin set
 Gowns, gloves, towels
 Linens (fenestrated sheet, 2 half sheets, 4 towels, Mayo cover)
 Sponges (radiopaque 4×4s, Laps)
 Suction tubing with suction tip
 Electrosurgical cord with tip
 Various suture material

Note: The type of suture used should be designated by your instructor.

Job Sheet 1

B. Procedure

Note: A set-up for a back table will vary from one hospital to the next. Refer to your instructor for specific placement of articles on the back table or to any modifications required on the job sheet to make it correspond with your local hospital set-up.

- ☐ 1. Drape back table with sterile cover.
- ☐ 2. Open all sterile supplies onto draped back table.
- ☐ 3. Scrub, gown, and glove.
- ☐ 4. Place linen in designated area of back table, arranged in the following sequence:
 - a. Fenestrated sheet
 - b. 2 half sheets (one to cover to the foot of table, the other to cover to anesthesia screen)
 - c. 4 towels — folded as the surgeon will use them
 - d. Mayo cover
- ☐ 5. Place gloves and gowns, with towels on top of gowns in designated area.

Note: In some hospitals, a separate sterile table is used for gowning and/or gloving, so these would not need to be placed on the back table.

- ☐ 6. Place extra sterile towels in designated area.
- ☐ 7. Place basins in designated area.
- ☐ 8. Place instrument set in designated area.
- ☐ 9. Place sponges in designated area.
- ☐ 10. Place suction tubing with tip in designated area.
- ☐ 11. Place electrosurgical (cautery) cord in designated area.
- ☐ 12. Arrange suture as designated by the instructor.

Note: Many hospitals use extra towels opened and placed in designated areas of the back table as an extra barrier layer. This extra barrier helps prevent instruments and other sharp objects from puncturing the back table drape.

Job Sheet 1

Evaluator's comments: _____

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

Job Sheet 2—Arrange a Basic Mayo Stand

Name _____ Attempt Number _____
Date _____ Overall Rating _____

Evaluation criteria	Rating
Assembled all equipment and supplies	_____
Correctly placed sterile towel over Mayo cover	_____
Arranged suture as designated by the instructor	_____
Arranged instruments as designated by the instructor	_____
Correctly placed electrosurgical cord with tip	_____
Correctly placed suction tubing with tip	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have all equipment and supplies ready to simulate an actual operating room setting.

A. Equipment and supplies

Mayo stand
Mayo stand cover (sterile)
Sterile towels
Basic instrument set
Suction tubing with suction tip
Electrosurgical cord with tip
Various suture material

Note: The suture and its placement should be designated by your instructor.

B. Procedure

Note: A set-up for a Mayo stand will vary from one hospital to the next. Refer to your instructor for specific placement of articles on the Mayo stand or to any modifications required on the job sheet to make it correspond with your local hospital set-up.

- ☐ 1. Drape Mayo stand with sterile cover.
- ☐ 2. Open sterile towel and place lengthwise over Mayo cover.
- ☐ 3. Arrange suture as designated by your instructor.

Job Sheet 2

- ☐ 4. Place instruments on Mayo as designated by your instructor. This may include:
- a. Knife handle with blade — #4 with #20 blade
 - b. Knife handle with blade — #3 with #10 blade
 - c. Curved and/or straight Mayo scissors
 - d. Curved Metzenbaum scissors
 - e. Smooth and toothed tissue forceps
 - f. Straight hemostats
 - g. Kelly clamps
 - h. Allis forceps
 - i. Retractors
 - j. Needle holders
- ☐ 5. Coil electrosurgical cord with tip loosely on top of the instruments.
- ☐ 6. Coil suction tubing with tip loosely on top of the instruments.

Evaluator's comments: _____

**Division of Duties
When Establishing a Sterile Field
Unit 8-C**

**Job Sheet 3—Perform the Surgical Technologist's Duties
When Establishing a Sterile Field**

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Wore proper OR attire	_____
Assembled all equipment and supplies	_____
Washed hands	_____
Established initial sterile field	_____
Scrubbed, gowned, and gloved in the appropriate manner	_____
Organized supplies and equipment on back table	_____
Organized supplies and equipment on Mayo stand	_____
Counted sponges, sharps, and instruments as required	_____
Gowned and gloved surgeon(s)	_____
Passed drapes	_____
Assisted with draping	_____
Completed establishment of sterile field	_____
Attached suction tubing and electrosurgical cord to field	_____
Passed instruments as required	_____
Applied sterile dressing	_____
Handled surgical specimen in the appropriate manner	_____
Disposed of supplies and equipment	_____
Prepared room for next case	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have all equipment and supplies ready to simulate an actual operating room setting.

A. Equipment and supplies

- Proper OR attire
- Surgical scrub materials
- Case instruments, equipment, and supplies
- Surgeon's case preferences (special equipment, instruments, supplies)

Job Sheet 3**B. Procedure**

- ☐ 1. Don proper OR attire (scrub suit, head gear, shoe covers, mask, no jewelry).
- ☐ 2. Wash hands.
- ☐ 3. Pull for case — Basic set-up and surgeon's preferences.
- ☐ 4. Open outer wrappers and establish initial sterile field.
- ☐ 5. Perform surgical scrub.
- ☐ 6. Gown and glove.
- ☐ 7. Organize supplies and equipment on back table.
- ☐ 8. Drape Mayo stand.
- ☐ 9. Set-up Mayo.
- ☐ 10. Count instruments, needles, and sponges.
- ☐ 11. Complete the set-up of the back table, Mayo, and ring stand with additional instruments and supplies as needed.
- ☐ 12. Gown and glove surgeon(s).
- ☐ 13. Pass drapes and assist with draping.
- ☐ 14. Move Mayo and back table up to operating room table to establish sterile field.
- ☐ 15. Attach suction tubing and electrosurgical cord to field; hand off unattached end to circulator for connection.
- ☐ 16. Pass instrumentation as required during case.
- ☐ 17. Count sponges, sharps, and instruments as required with circulator during case and with closure.
- ☐ 18. Apply dressings.
- ☐ 19. Care for specimen.
- ☐ 20. Clean room, dispose of sharps, and prepare used instruments for processing.
- ☐ 21. Prepare room for following case.

Job Sheet 3

Evaluator's comments: _____

Division of Duties
When Establishing a Sterile Field
Unit 8-C

Job Sheet 4—Perform the Circulator's Duties
When Establishing a Sterile Field

Name _____ Attempt Number _____

Date _____ Overall Rating _____

Evaluation criteria	Rating
Wore proper OR attire	_____
Assembled all equipment and supplies	_____
Washed hands	_____
Established initial sterile field	_____
Checked equipment in the operating room	_____
Identified patient	_____
Transferred patient as required	_____
Assisted anesthetist with IVs, intubation, and positioning	_____
Placed electrosurgical grounding pad	_____
Performed surgical prep as required	_____
Tied surgeon's gown	_____
Connected suction and electrosurgical cord to machines	_____
Adjusted electrosurgical unit and suction to correct levels	_____
Obtained additional supplies	_____
Completed operating room records	_____
Counted sponges, sharps, and instruments as required	_____
Secured sterile dressing	_____
Handled surgical specimen in the appropriate manner	_____
Prepared room for next case	_____

Instructions: When you are ready to perform this task, ask your instructor to observe the procedure and rate your performance using the evaluation criteria. Have all equipment and supplies ready to simulate an actual operating room setting.

A. Equipment and supplies

Proper OR attire
Case instruments, equipment, and supplies
Surgeon's case preferences (special equipment, instruments, supplies)
OR records and charge slips
Specimen containers and labels
Patient

Job Sheet 4

B. Procedure

- ☐ 1. Don proper OR attire (scrub suit, head gear, shoe covers, mask, no jewelry).
- ☐ 2. Wash hands.
- ☐ 3. Pull for case — Mask, basic set-up, and surgeon's preferences.
- ☐ 4. Assist with opening outer wrappers and establishing initial sterile field.
- ☐ 5. Check OR table, lights, suction, electrosurgical unit, and special equipment.
- ☐ 6. Greet and identify patient; transfer to OR table.
- ☐ 7. Assist anesthetist with IVs and intubation.
- ☐ 8. Assist anesthetist with positioning.
- ☐ 9. Place electrosurgical grounding pad if required.
- ☐ 10. Catheterize if ordered, and do sterile prep.
- ☐ 11. Tie gowns.
- ☐ 12. Connect electrosurgical cords and suction tubing to machines.
- ☐ 13. Set electrosurgical unit and suction at appropriate levels for use.
- ☐ 14. Retrieve additional supplies as needed.
- ☐ 15. Fill out OR records and charges.
- ☐ 16. Count sponges, sharps, and instruments according to hospital policy, report counts to surgeon, and record.
- ☐ 17. Sign count sheet.
- ☐ 18. Secure dressing.
- ☐ 19. Secure drains.
- ☐ 20. Identify, label, and preserve specimen, and deliver to pathology.
- ☐ 21. Transfer patient to recovery cart.
- ☐ 22. Transfer patient to post-anesthesia recovery.

Job Sheet 4

- ☐ 23. Assist with preparing room for following case.

Evaluator's comments: _____
